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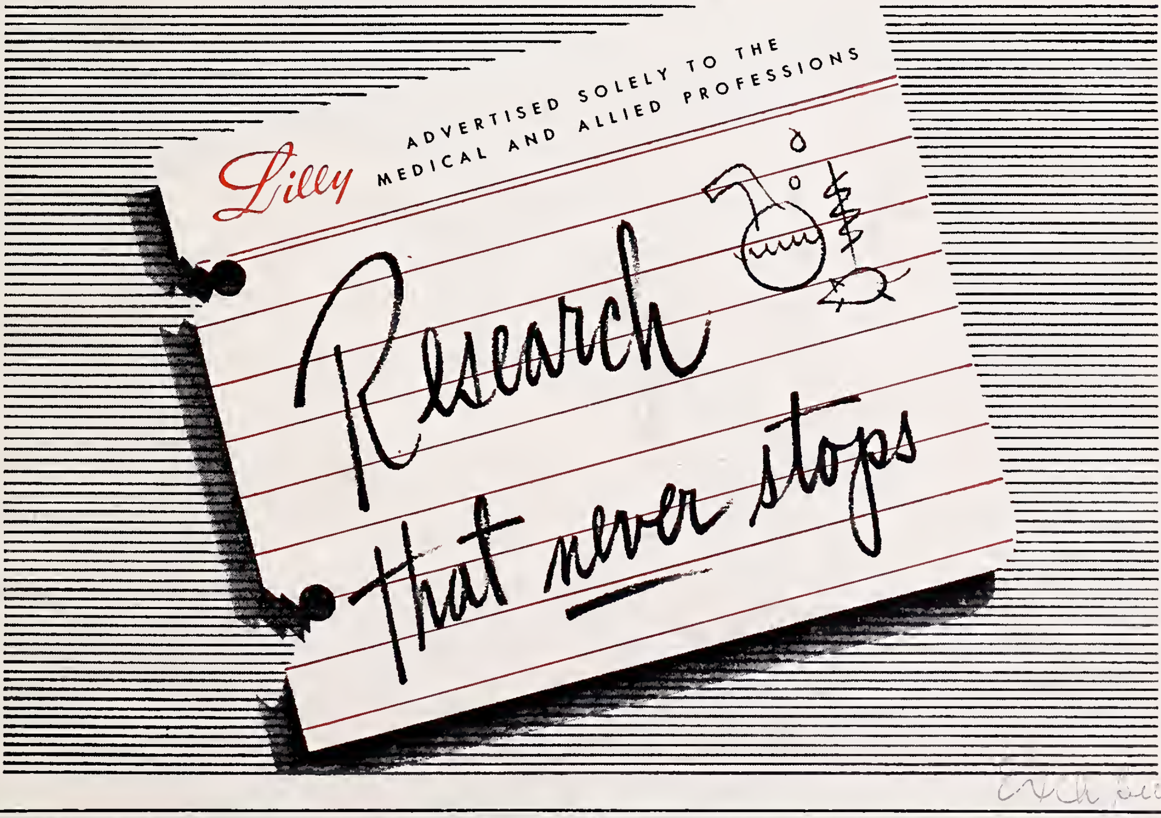
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[1] Perloff, W. M.: Am. J. Obst. & Gynec. 58:684, 1949.

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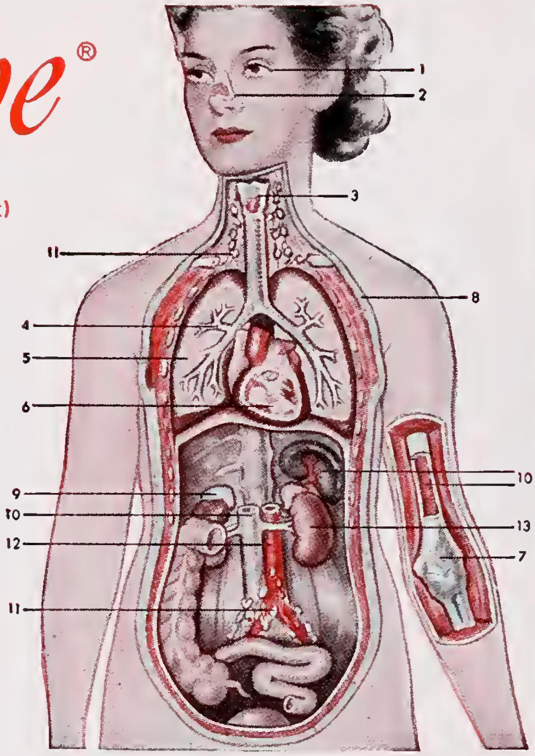

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[1] Reich, W. J., et al. (1952), A Recent Advance in Estrogen Therapy. II. Amer. J. Obst. & Gynec., 64:174, July. [2] Reich, W. J., et al. (1951), A Recent Advance in Estrogen Therapy. I. Amer. J. Obst. & Gynec., 62:427, August.

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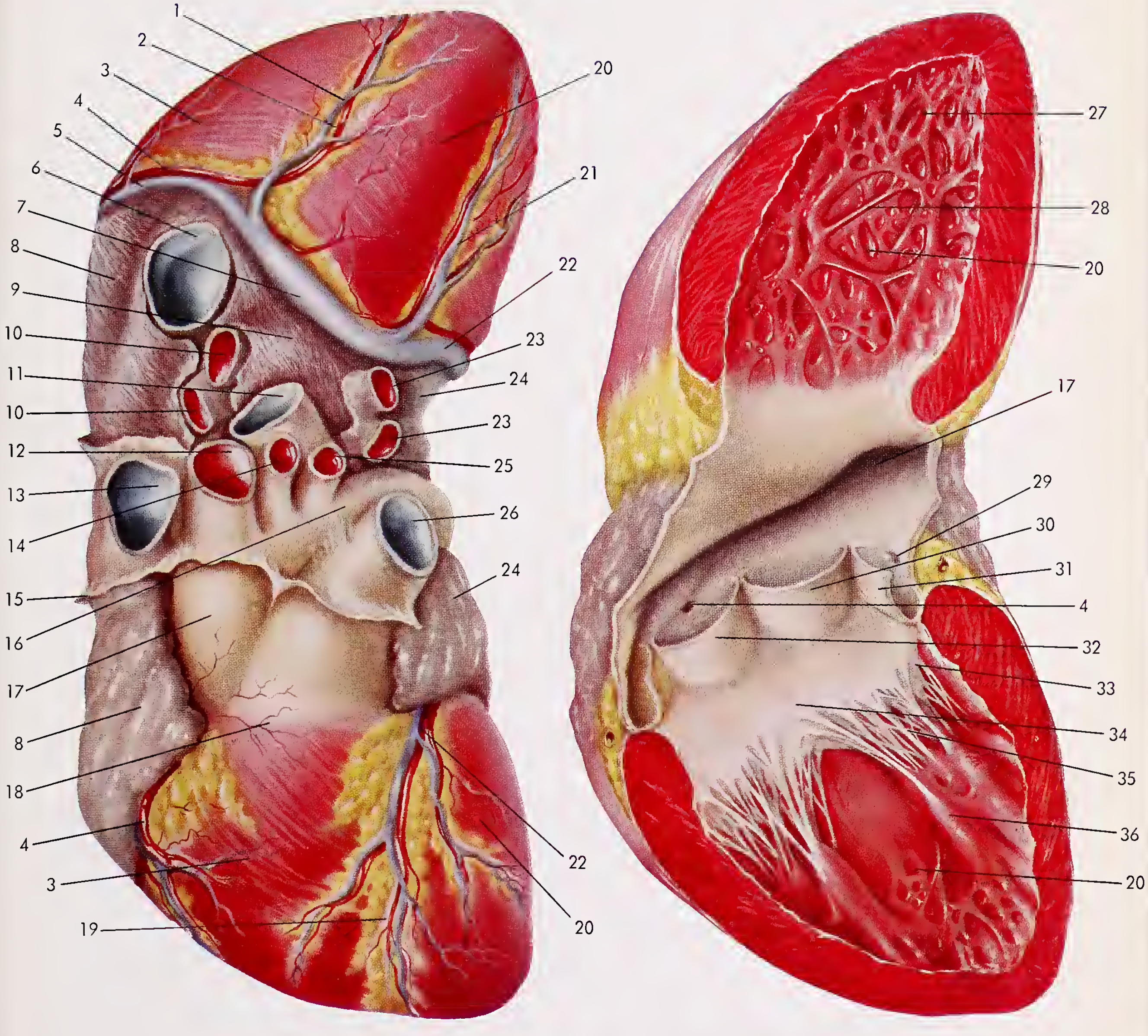

1 Middle cardiac vein
2 Posterior descending branch of right coronary artery
3 Right ventricle
4 Right coronary artery
5 Small cardiac vein
6 Inferior vena cava
7 Coronary sinus
8 Right auricle
9 Left atrium
10 Right pulmonary vein
11 Right branch of pulmonary artery
12 Innominate artery
13 Superior vena cava
14 Left common carotid artery
15 Pericardium
16 Aortic arch
17 Ascending aorta
18 Conus arteriosus
19 Anterior descending branch of left coronary artery
20 Left ventricle
21 Posterior vein of left ventricle
22 Great cardiac vein
23 Left pulmonary vein
24 Left auricle
25 Left subclavian artery
26 Left branch of pulmonary artery
27 Trabeculae carneae
28 Trabecula tendinea
29 Left coronary artery
30 Posterior semilunar valve
31 Left semilunar valve
32 Right semilunar valve
33 Posterior cusp of mitral (bicuspid) valve
34 Anterior cusp of mitral (bicuspid) valve
35 Chordae tendineae
36 Papillary muscle

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4. Corynebacterium diphtheriae	Diphtheria carriers
5. Nonhemolytic streptococci	Some cases of endocarditis, genito-urinary tract infections

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PERIODIC HEALTH EXAMINATIONS IN INDUSTRY

Lemuel C. McGee, M. D.,*
Wilmington, Del.

I. Introduction

Experience has shown that a medical examination program in industry directed toward the best health interests of the employee proves to be beneficial both to the individual and to his company. There is no conflict of interests between employee and management in a properly conducted industrial health program.

In summary, the benefits to the employee are:

a) Affords early recognition of incipient disease.
b) Eliminates anxiety over trivial conditions; i.e., unimportant peculiarities of the individual worker which are without health import.
c) Protects against contagious disease at work.
d) Prevents the worker from being assigned to work which is too great for his physical abilities.
e) Protects against disease arising from occupation.
f) Promotes the correction of remediable physical defects.
g) Provides an opportunity for health education.

The employer finds these benefits from an adequate examination program:

a) Better employee morale and good will.
b) Reduction in the amount of time lost from work because of illness.
c) Increased efficiency in personnel.
d) Reduction in costs of benefit plans, group insurance and industrial compensation.
e) Better placement and less turnover of labor.

II. The Selection of an Examining Physician

The examining physician should be one who has sincere interest in the use of the periodic health interview for health maintenance as well as for the early detection of disease. The ability to take a good medical history and a knowledge of the techniques of an adequate physical examination are essential. The physician should have a persuasive personality, one who can convince others of the worthwhileness of a given course of action. He should be of high moral and intellectual integrity, one who is unwilling to compromise his medical opinion for any consideration other than the best health interest of the employee. An interest in health examinations and basic competence of the physician are factors which outweigh such considerations as how his services are obtained; i.e., whether company-employed, clinic staff member or independent practitioner.

III. The Medical History in the Periodic Health Examination

The employee usually presents himself either with no complaints or with complaints of a minor nature at the periodic health examination. Confidence by the examinee in the interviewing physician is a prime requisite if a satisfactory inventory of body functions, past and present, is to be obtained. Unless the examinee knows that the interview is for his benefit there may be an understandable reluctance to disclose his complete medical history.

The interview should be conducted in complete privacy and the information obtained should be used only as in proper and long accepted physician-patient relationships. Importance is to be attached to the following: (a) family health history; (b) metabolic disorders; (c) infectious diseases; (d) allergies; (e) circulatory and respiratory function; (f) digestive disturbances; (g) living habits, both at work and play; (h) pyschologic and behavior eccentricities; (i) self medication record; (j) previous notations on the individual health record; (k) occupational and other environmental influences.

---

*Attending Chief, Division of Medicine, Delaware Hospital, Medical Director, Hercules Powder Company.

IV. The Physical Examination

A satisfactory examination requires alertness and adequate time from the examiner. Any tendency for the examiner to be hurried is to be deplored. The examining room needs to be well lighted, quiet and comfortable. The details of an adequate physical examination are well known to physicians from their medical school and hospital training, are described by standard textbooks on the subject, and need not be repeated here.

The frequency of periodic examinations varies with the age and sex of the industrial employee, the nature of occupation, the presence or absence of latent disease and individual health handicaps. There is a tendency for older workers and those in hazardous occupations to be examined at more frequent intervals. The interval between examinations most often reported for workers under medical supervision in non-hazardous occupations is one year. In so far as age affects the frequency of the examination, one proposed schedule is as follows: under 30 years of age, every 3 years; age 30-40 years, every 2 years; age 40-60 years, annually; age 60-65 years, semi-annually.

There can be, however, no ideal arbitrary examination interval for a group of people. Individualization is necessary. What is important is the establishment of confidence in the examiner and a willingness of the industrial worker to report any evidence of impairment of his well-being promptly so that whatever re-examination is necessary may be given without delay. The character and frequency of examinations is best determined for a group of employees after a study of the needs of the group by a physician experienced in industrial hygiene and the operation of industrial health programs. Such consultation and advice are available in the nation's various industrial areas.

Other than medical examinations before placement in industry and the periodic health inventory, the following special examinations have been found to be useful for industrial employees: (a) special examinations of workers in hazardous occupations; (b) examinations upon return to work after illness or injury; (c) job transfer examinations; (d) examinations of food handlers; (e) examinations by request of the employee.

It must be recognized by anyone using medical report forms, that no one form can be devised to fit, optimally, each examinee. Report forms are used widely in industry to serve three purposes: (a) to furnish a written record of an examination; (b) to furnish the examiner with a check list of basic essentials in the interview and examination; (c) to allow statistical compilation of facts gleaned by many different examiners through uniformity of reporting forms.

V. The Use of Laboratory Procedures

Two approaches to the selection of laboratory procedures for use with the periodic health examination are currently found in industry. Both have elements of usefulness to recommend their employment in suitable groups.

1) A battery of screening tests devised for speed and low cost application to large groups of people without selection by interview and physicial examination. Such tests are photofluorograms of the chest, blood serology, blood sugar estimations, urinalyses, etc.

2) Procedures selected by the physician after obtaining the history and physical examination of the man interviewed in a health check-up. This is the individual approach sanctioned by long experience of medical practice in dealing with the man with a complaint; i.e., the patient. In the ostensibly well person, the physician may not have the clue of a complaint or physical finding to guide him in selecting laboratory procedures.

Basically, a urinalysis and hemoglobin estimation or blood count are recommended. Until syphilis is brought under control blood serology should be had at intervals (depending upon community incidence) for case finding. Many industrial groups receive chest surveys at intervals of 18 to 24 months (or oftener in suspected minimal or known arrested pulmonary tuberculosis). An electrocardiogram, especially on men over forty years of age, has been helpful in revealing unsuspected evidence of vascular disease.

Additional laboratory or roentgenographic tests are dictated by the judgment of the physician in selected workers. In special examination programs for executives certain groups receive some blood chemistry (e. g., urea nitrogen and blood sugar), sigmoidoscopic and stool examinations, and gastro-intestinal X-ray studies, in addition to the above, as part of the routine.

VI. The Interview After the Examination

Every lay person needs advice on health consonant with his ability to understand it. The examinee properly expects some comment from the physician as to the results of the examination. Whenever illness is discovered, the character of the advice is clearly indicated. Even in minor deviations from health, there is need for explanation of their significance by the physician. Early obesity, eating habits, use of laxatives, dental and gingival disease, skin disorders, smoking and drinking habits, emotional states and posture are excellent and frequently recurring starting points for health counselling.

The preventive potentiality of advice resulting from a health examination appeals to intelligent persons. It is the physician's responsibility to explain, lay proper emphasis and to assure himself that his advice is understood by its recipient. Routine written reports to the layman do not serve this purpose, are subject to misinterpretation, and are not recommended as a substitute for the personal interview. For the full fruition of this form of preventive medicine the man examined must act on the advice, his personal physician or consultant must know the pertinent findings which suggest further medical attention or treatment.

The examination cannot reliably forecast the future development of disease. Neither the physician nor the person receiving the health interview should disregard the inherent limitations of the examination. Negative findings may be replaced by positive findings the week after the examination. An effective periodic examination program requires that the persons concerned report signs or symptoms of illness immediately and without regard to the time of the last previous interview with the physician.

Labor statistics show that the average employee in the United States is absent from his job twelve days each year because of illness. An adequate industrial health program in many industries has reduced illness absences approximately fifty per cent. While adequate examinations cost money, the returns in dollars are quite apparent. Experience has shown that whenever industry has had an adequate medical program it is unlikely to discontinue what it has found to be a great asset to the health, happiness and efficiency of its personnel.

THE EVALUATION OF THE GALLIE FASCIA LATA REPAIR OF DIFFICULT HERNIAS

Edmund G. Laird, M. D.*
Wilmington, Del.

The use of foreign material to aid in the repair of difficult hernias goes back as far as about 1900 when Wetzel and Goepel in Germany used silver wire filigree.

According to H. B. Sweetser[1], this was followed in this country by Willy Myer Wiener of New York and Perry of Massachusetts. In 1917 Sweetser reported two of his own cases with satisfactory results, and P. P. Cole[2], reported seven more in 1924. The use of artificial "prostheses" found little general favor, however, until Koontz in 1948[3], began using tantalum gauze mesh for recurrent ventral hernias with defective structures. In 1950[4], the same author reported 134 cases of ventral and inguinal hernias repaired with the aid of tantalum mesh with only one recurrence, some of the cases having been followed for four years or more.

Since his first report, various and sundry materials have been used—some with good and some with bad results. For example, McNealy and Glassman[5], used vitallium plates; Jones[6], used stainless steel cloth; Bonnal, Corti and Bimar[7], tried nylon net while other materials such as flexible glass mesh, knitted wire mesh, preserved ox fascia and polythene (cellophane) have been tried.

Of all the foreign materials employed, it appears that stainless steel cloth (mesh) and tantalum gauze mesh have been found the most satisfactory and the reports in the literature of the past two or three years have become too numerous to discuss at this time.

---

*Attending Chief, Division of Surgery, Delaware Hospital.

Having been in the habit of using the living fascia lata strips as advocated by Gallie and Le Mesurier in 1922[8], I noted with particular attention several cases in our hospitals in which the wire or tantalum mesh had been used with unhappy results, so that I eventually undertook to look up the results in the cases I could collect in which the Gallie repair had been employed.

The results were so good and the number of surgeons using this technique were so few that I decided to look up the reported results of both methods in the hope of stimulating a renewed interest in a tried and proven method of handling the difficult hernias in which the musculo-fascial structures were inadequate to expect success with the usual methods.

To my surprise I found that the end results with both techniques have been almost equally good and I would show preference for the Gallie-Le Mesurier operation only because it seems more physiological and causes less post-operative discomfort and complications. The only two drawbacks to the living fascia sutures seems to be their somewhat greater susceptibility to infection and the time consumed to perform the operation. The disability to the thigh from which the sutures are taken seldom, if ever, causes any patient enough discomfort to warrant its consideration in comparing these two techniques, and the time of operation can be cut down to only a little more than that required for an ordinary difficult repair if the use of two teams working simultaneously, as advocated by Coley and Burke[9], can be effected.

Personally, I arrange to have a second surgeon procure the fascial strips and fashion them into sutures in small Gallie-type needles while I am performing the ground-work of the hernial repair.

Gallie, Le Mesurier and Masson have emphasized that a hernial repair dependent on fibrous or scar tissue can be expected to fail because of the stretching tendencies of scar tissue as compared with fascial and tendinous structures. The excellent results obtained of late with the wire mesh, which, after the usual fragmentation of the filaments at the end of nine months, are essentially repairs with scar tissue, would tend to disprove the above tenets of Gallie et al, but I cannot help but believe that the long term follow-ups of the tantalum mesh repairs will show a greater tendency to recurrence than has been evinced in the literature to date. In any event, we are seeing an appreciably, though small, number of cases in this area in which the repairs have failed or the foreign material has had to be removed. Most of these unsatisfactory cases have been those with glass mesh prostheses.

As for infections with the Gallie technique, I have had only one and that was a delayed one of low virulence which did not affect a cure and which has been followed eleven years. In this case (see below), the patient's musculofascial structures of the abdominal wall could not even be approximated and the result was obtained by a woven latticework of fascia lata strips. Other authors have also had similar experiences in infected cases.

For the reader's benefit I will give some of the reported end results of the fascia lata and tantalum or stainless steel mesh techniques.

The following tables are not meant to be too accurate, in that details regarding the types of hernias and the average length of follow-up are not given. The longest period during which any individual patient in the series was followed is stated in the final column. On the whole, this presentation is as fair for one group as another, but it is evident that a tendency has existed to reserve the fascia lata repairs for the extreme and many-times recurrent cases as opposed employing them as a more routine procedure with all direct inguinal or ventral hernias. The latter has been favored by some authors reporting on the use of wire mesh.

The technique which I have employed is the typical Gallie-Le Mesurier type. Rather than fix the fascial strips with catgut, however, I have used silk exclusively. The sutures are locked by transfixing or knotting at frequent points to prevent motion or slipping, and the weaving extends widely from the approximated fascial margins so as to incorporate firm fascial structures or tissues on all sides.

The amount of fascia used should be plen-

Steel Mesh Repairs:

Author	Date	No. of Cases	Types of Hernia	Failures	Follow-up
Kootz[3]	1948	5	ventral	0	1½ yrs.
Koontz[4]	1950	134	ventral and inguinal	1	4
Koontz[10]	1951	77	inguinal	1	
Eginton[11]	1951	9	ventral	0	2
Flymn et al[12]	1951	45	ventral	1	4½
Guy et al[13]	1951	42	ventral, umbilical and inguinal	0	2
Lam[14]	1948	24	ventral	2	2
Dunlop[15]	1950	51	inguinal and incisional	2	2
Mufson[16]	1952	10	ventral and inguinal	3	

Fascia Lata Repairs:

Author	Date	No. of Cases	Types of Hernia	Failures	Follow-up
Gallie et al[8]	1922	50	recurrent ventral and inguinal	0	
Gallie et al[17]	1924	60	recurrent inguinal	0	4
Gallie et al[18]	1923	200	recurrent inguinal and ventral	6	2
Smith and Masson[19]	1940	85 (62 follow-ups)	incisional, epigastric and umbilical	5	5
McCloskey et al[20]	1940	82	inguinal	3	
Morse et al[21]	1943	11	ventral	0	1½
Iason[22]	1943	80	"large herniae"	4	
Austin et al[23]	1951	11	ventral and umbilical	0	
Laird	1952	12	ventral, lumbar and inguinal	0	11

tiful and any immediate post-operative fullness or thickness soon becomes inconspicuous, and the patient experiences no more post-operative discomfort than with any simple repair of commensurate size.

Infection has been no problem and the single instance encountered did not impair the result of one of my most difficult cases.

As opposed to the "work-hardening" and fragmentation seen when tantalum gauze is employed, the final repair is of unyielding fascial tissue rather than of scar or fibrous tissue, so that gradual stretching would not be expected.

The number of cases presented is small but the results would seem to warrant the employment of this technique in the more difficult cases where recurrence is to be expected.

Summary of Cases

An appraisal of the repair of difficult cases of epigastric, incisional, inguinal and lumbar hernias with Gallie living fascia sutures has been attempted. The end results have been compared with those reported with the use of wire mesh and other "prostheses." Twelve cases without a single recurrence are reported.

Case 1, Mrs. A. diS., 48 yrs. In 1924, the patient underwent a pelvic operation through a low midline incision. She developed an incisional hernia before leaving the hospital. Five years later, the hernia was repaired followed by a recurrence in three months. In 1932 she suffered a partial intestinal obstruction which was relieved without operation. On February 23, 1941 she again became partially obstructed.

Examination on March 6, 1941 showed an obese woman with a hernia below the umbilicus just to the right of the mid-line through which projected a large mass of intestines. The margins of the defect were widely separated and indistinct.

Operation (October 2, 1941): Patient had reduced forty pounds. There was a wide loss of the fascia of the right rectus so that only the upper and lower margins could be approximated. Using strips of fascia from the thigh, the defect was closed by weaving with fascial sutures following the Gallie technique. The patient developed a post-operative pneumonia and a low-grade wound infection. A hemolytic Staphylococcus aureus and Streptococcus fecalis were obtained on culture. She was discharged on October 27, 1941 with a draining wound. On November 22, 1941 the wound was opened superficially and packed after removing a strip of necrotic fascia. Drainage persisted and on January 26, 1942 the wound was explored again. The fascia was intact and firm but a subcutaneous pocket was found to be lined with boggy, unhealthy granulation tissue. This was laid open and packed. Healing was slow but finally complete by June 6, 1942. The closure remained firm.

On July 13, 1950 the patient became obstructed following an acute attack of diarrhea while visiting in Mexico. She was flown home and the obstruction was relieved promptly by means of a Miller-Abbott tube.

On November 27, 1950, a check examination revealed a firm repair. The patient had been performing all her normal activities without the aid of any binder, corset or external support, and is personally known to have remained well up to the present time, a period of ten years and four months.

Case 2. Mr. R. DeR., 38 yrs. His past health had been good except for recurrent diverticulitis of the colon and paralytic poliomyelitis resulting in paralysis and shortening of the left leg.

In 1937 a right inguinal hernia was discovered and repaired in Buffalo, N. Y. The hernia recurred and in 1939 another surgeon repaired the hernia, supposedly with living fascial strips from the thigh. Shortly thereafter he lifted his wife into a car and developed an acute recurrence with sudden pain and protrusion in the inguinal region.

Examination on December 8, 1949, revealed a definite herniation with a protrusion extending into the upper part of the scrotum. The defect readily admitted a man's thumb.

Operation (January 27, 1950): The hernia was repaired for the third time. Strips of fascia lata were used according to the Gallie technique to reinforce by weaving the attenuated conjoint tendon and rectus fascia to Poupart's ligament and also the attentuated fascia of the external oblique to Poupart's ligament.

The post-operative course was uneventful and the patient was discharged on the fifteenth post-operative day.

A follow-up examination on October 16, 1952, showed a firm repair. The patient was performing all his normal activities without limitations, and was eminently pleased.

Case 3. Mr. E. G., 45 yrs. This patient had a right inguinal hernia which had been repaired on two occasions, March 19, 1952 and February 16, 1944, with prompt recurrences. Otherwise, his past health had been good. Twenty-four hours before being seen he became completely obstructed by strangulation of the hernia.

Examination on May 12, 1951, showed a large scrotal hernia on the right with a definite strangulation of the contents of the sac, with vomiting, prostration and cramp; abdominal pains.

Operation (May 12, 1951): Undertaken as an emergency procedure, the operation revealed that the tremendous hernial sac contained the cecum and a portion of the terminal ileum. These were discolored and bordering on gangrene. The circulation returned after releasing the constriction and the hernia was repaired according to the Gallie technique, weaving the conjoint tendon and margin of the rectus sheath to Poupart's ligament with living fascial strips from the thigh. The medial margin of the fascia of the external oblique was likewise attached to the inguinal ligament wtih fascial strips. The cord was transplanted according to the Halsted procedure for direct herniae.

The patient was discharged on May 27, 1951 without further complications but it was found that the patient had an indirect hernia and a spermatocele on the **left** side. This was subsequently repaired by the Halsted method without fascial strips on August 4, 1951 following a partial strangulation which could be reduced prior to operation.

Follow-up examination on October 30, 1952 revealed a firm repair on both sides and the patient was able to perform hard manual labor without artificial support or disability.

Case 4. Mrs. E. S., 46 yrs. This patient was an obese woman who had had a total hysterectomy performed through a low mid-line incision on March 7, 1951. Immediately after her return home she noticed a swelling of her wound which gradually increased in size until it approached the size of a honey-dew melon.

Examination on September 10, 1951 showed a very obese woman with an incisional hernia of tremendous proportions as described above. The margins of the defect were well outlined but markedly separated.

Operation (September 17, 1951): The hernia was repaired in the usual manner approximating the fascial edges with interrupted black silk sutures under considerable tension. The suture line was reinforced by weaving fascial strips from the thigh over the line of suture, the strips being attached on either side in good firm fascia of the rectus sheath.

She made an uneventful recovery and a follow-up examination on October 16, 1952 showed a solid repair, permitting her to resume any desired occupation without external support. A tiny (1 cm.) umbilical protrusion was found of which she was unaware. I doubt that this had any connection with the repair and I consider this probably to be an "incidental finding." Anyhow, no further surgery was indicated.

Case 5. Mrs. M. J., 55 yrs. This patient gave a history of an appendectomy in 1938 (right rectus incision); a supravaginal hysterectomy for uterine fibroids in 1942; and a left nephrotomy for renal stones in 1947. One year after her kidney operation, she noticed a painful bulge in the incision in the left lumbar region which gradually increased in size and in the degree of discomfort.

Examination on May 13, 1950 showed an obese woman with a large protuberant abdomen. A low right paramedian and a low mid-line incision showed firm healing, but there was a poorly delineated bulge or weakness along the line of the left lumbar incision. There was a definite herniation at the lower portion of the lumbar triangle which was tender to palpation. This evinced an impulse on coughing. The patient's threshold for pain was quite reduced.

Operation (May 22, 1950): The obvious defect was found to be at the lowermost portion of the lumbar triangle, resulting from a separation of the external oblique muscle fibres and the lumbodorsal fascia near the origin of the muscle from the fascia. The superior lumbar triangle appeared reasonably firm. The margins of the herniation were very indstinct and the muscles themselves (external and internal oblique) seemed flaccid and attenuated. No true sac from the peritoneum was found, although the latter was opened. The fascial and muscular defects were closed with silk sutures as firmly as possible, following which fascial strips from the thigh were woven over a broad area in the region of the former protrusion, being attached in firm structures remote from the underlying line of sutures. The superior lumber triangle was also reinforced with fascia sutures.

The patient was discharged on the fourteenth post-operative day without complications.

Follow-up examination on August 25, 1950, showed a very satisfactory result and a complete relief of pain although there was a diffuse fullness of the whole left flank anteriorly as compared with the right side. This had been present before operation and suggested injury to the 12th intercostal nerve. Diminished cutaneous sensation over the distribution of T-12 also suggested this and the patient stated that this had been present following the original operation.

A check on October 17, 1952, showed the condition unchanged and the patient able to perform all duties without discomfort. The diffuse bulge persisted due to the obvious damage to the anterior branch of the 12th intercostal nerve.

Case 6. Mrs. C. D., 45 yrs. This patient was admitted in January 1952 with symptoms of intestinal obstruction of several days' duration. Twelve years previously she had had a Caesarian section and an appendectomy. Shortly afterwards she developed an incisional hernia and pains simulating gall-bladder disease. In December 1951, a cholecystogram was normal.

Examination revealed a hernia through a right rectus incision with a large protrusion of intestine.

Operation (February 5, 1952): A loculated hernial sac was found containing many loops of intestine. There were numerous fascial defects and strong, reliahle fascia was encountered 15 cm. from the mid-line. The attenuated fascia was removed and a two-layer closure accomplished with silk sutures. This was reinforced with about ten strips of woven fascia lata.

The post-operative course was uneventful and she was discharged on February 17, 1952, showing a sound repair. The patient has failed to respond to any correspondence since that date.

Case 7. Mr. A. H., 59 yrs. The patient had had some form of repair of an inguinal hernia, right, seven years previously, at which time fascia had been taken from the thigh to aid in the repair. Two years later a recurrence was noted and he wore a sacro-iliac belt when he worked, to relieve a "feeling of weakness" in the inguinal region.

Among other complaints were varicose veins and a chronic prepatella bursitis.

Examination on February 14, 1952, revealed a large, recurrent, indrect inguinal hernia on the right side with an equally large, indirect inguinal hernia on the left side. The fascial structures on both sides were relaxed and bulging, indicating poor quality of the external and internal oblique muscles and fascia. There was also a marked dilatation of the greater saphenous veins of the right leg with edema of the right leg, and a chronic prepatella bursitis, left.

Operation (March 14, 1952): Both herniae were repaired in one stage according to the Gallie technique, reinforcing the attachment of the conjoint tendon and the inguinal ligament with woven fascial strips, and subsequently reinforcing the fascial repair with the same material.

The post-operative course was unremarkable and in six weeks the patient resumed his occupation as a gardener without local support.

Follow-up on October 21, 1952, showed firm healing of both herniae and the patient able to do any kind of work. He had developed symptoms of a herniated intervertebral disk, however, and was referred to an neurosurgeon.

Case 8. Mr. E. R., 55 yrs. This laborer on the state roads was first seen on May 18, 1946, complaining of pain in a large, right-sided, scrotal hernia. He had had an appendectomy twenty years previously and there was an incisional scar just above the protrusion. He had become very obese and at first it was hard to determine whether the herniation came from the previous incision as well as from the inguinal ring or not. Reduction could be maintained with great difficulty. He also had a severe post-phlebitic ulcer on the left leg, for which he wore a laced harness extending from the ankle to the left groin.

After having reduced twenty-five pounds, on June 4, 1946, a Halsted type repair of the huge indirect inguinal hernia was performed and the patient returned to strenuous labor on the roads. Three years later he returned with a small, painful recurrence and a marked increase in weight (21½ lbs.).

Operation (September 18, 1951): The hernia was again repaired as before, except that the repair was reinforced with fascial strips according to the Gallie technique.

The post-operative course was uneventful and the patient resumed his occupation in eight weeks. On October 30, 1951, the left greater and lesser saphenous veins were ligated with great benefit.

Follow-up on April 8, 1952, showed a firm repair, the patient having continued in his former occupation.

Case 9. Mrs. E. A., 68 yrs. This obese woman had had an umbilical hernia repaired with a prompt recurrence. A second repair was performed by the same surgeon approximately three years later at which time some incarcerated bowel was penetrated and the repair broke down before the patient left the hospital, presumably because of infection. Since that time she had worn a belt with reasonable comfort.

Two days before admission on June 17, 1952, she developed symptoms of intestinal obstruction and was brought to the hospital in a state of shock. She recovered on conservative treatment.

Examination revealed a large, loculated, irreducible hernia just above the umbilicus with a narrow neck measuring one and one-half inches in diameter. Several loops of intestine could be seen and felt in the sac.

Operation (June 20, 1952): Two large loops of ileum were found entangled in a multi-loculated sac and firmly adherent to the same with fibrous adhesions. These were freed up and the sac and attenuated fascia were excised. Healthy fascia was then united in a three-layer closure with black silk. The whole suture line was then woven with strips of living fascia taken from the left thigh.

Immediately following operation the patient again went into a nearly fatal shock which was treated by blood transfusions and Cortisone. It was recognized then that she probably had adrenal insufficiency which had caused the initial shock, which had been out of proportion to the degree of intestinal obstruction present on admission.

Her subsequent recovery was unremarkable except for an accumulation of sterile sero-sangrenous fluid in the wound, which was removed by aspiration.

She was last seen on August 26, 1952, with a firmly healed wound, performing all her duties without the aid of any form of external support. The patient was uncooperative and further follow-up was abandoned but information received in October 1952 disclosed that no recurrence had occurred, and that the patient was very well.

Case 10. Mr. L. U., 45 yrs. This patient was a husky male who had been treated for peptic ulcer for three years without relief of epigastric distress and without visualization of the ulcer roentgenologically.

When first seen on June 23, 1952, the patient was critically ill with a completely rigid, board-like abdomen, having been suddenly stricken with acute upper abdominal pain eleven hours previously. The pains had rapidly spread over the entire abdomen.

A diagnosis of ruptured peptic ulcer was made and an immediate mid-line epigastric incision was made. The stomach and duodenum were normal but a ruptured, gangrenous appendix was removed.

A partial wound dehiscence occurred on the eighth post-operative day and when seen on September 15, 1952, a poorly defined, but large incisional hernia was present.

Operation (September 30, 1952): The redundant paritoneal protrusion was excised and a three-layer closure under extreme tension was performed with black silk sutures. The whole length of the repair was then woven with strips of living fascia from the thigh. In spite of the brief length of time between operations, the wound healed without infection.

Follow-up examination on November 7, 1952, revealed an excellent, firm repair and the patient had returned to full activity. A complete cure is expected at the time of writing this report, although too little time has elapsed to make any too positive statement.

Case 11. Mr. W. S., 42 yrs. This patient worked for an Express Company, carrying packages of every description. Ten years previously he had a right, indirect, inguinal hernia which was operated upon with prompt recurrence. He procured a truss which he wore until December 26, 1950, when he was first examined.

Several days before this date, while sitting at home, he developed sudden epigastric pain and noticed a small knot in the epigastrium which became increasingly tender.

Examination on December 26, 1950, disclosed a tender protrusion in the mid-line above the umbilicus, a large, right-sided, direct inguinal hernia and a smaller, direct, inguinal hernia, on the left.

Operation (January 4, 1951): The epigastric and the left, direct, inguinal hernias were repaired with black silk sutures. On January 12, 1952, the right, recurrent, inguinal hernia was repaired and was found to be indirect instead of direct as had been believed prior to operation. Gallie living fascia sutures were used in the usual manner to effect a Halsted-type repair.

Follow-up on November 8, 1952, revealed a completely satisfactory result in all three locations. The patient had resumed his occupation with the Express Company.

Case 12. Mr. L. N., 58 yrs. This car repairman had had a bilateral inguinal hernia. Some years previously the right side was repaired with a small recurrence. Three years ago the left side was repaired by another surgeon with satisfactory results. Two days before examination the patient underwent a transurethral resection for prostatic hypertrophy.

Examination on October 16, 1952, revealed a small, direct, recurrent, inguinal hernia on the right and a firm repair on the left side.

Operation (October 28, 1952): The fascial structures were so attenuated and shredded that no relaxing incisions of the anterior rectus sheath were deemed advisable. A Halsted-type repair of a direct hernia was performed, weaving the area between the rectus sheath and the inguinal ligament with numerous fascial sutures from the thigh.

When last seen on December 1, 1952, a good, firm repair was noted. The patient was to return to work in two weeks.

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PROBABLE LEUKEMOID REACTION ASSOCIATED WITH GASTRIC NEOPLASM

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Leukemoid reactions, although uncommon, may occur in a variety of diseases such as various acute and chronic infections, severe hemorrhage, hemolytic anemias, poisonings, Hodgkin's granuloma, and tumors.[1] Since the blood and bone marrow pictures may be indistinguishable from leukemia, the differential diagnosis may be extremely perplexing.

The following case illustrating this differential diagnostic difficulty is submitted herewith to add to the few reported cases of leukemoid reactions associated with neoplasm.[2, 3, 4, 5, 9, 11]

CASE REPORT

J. B., a 64 yr. old colored male was first seen in the Medical Clinic of the Delaware Hospital, Case No. 194334, in July, 1952, for puffiness of his legs, vomiting, and vague abdominal pains of about one month's duration. The patient stated he could not eat or drink moderate quantities of food at one sitting since this produces vomiting.

The principle finding on physical examination was a firm, left upper quadrant mass extending four fingers below the left costal eage, and which was thought by the examiner to be spleen. A firm, smooth liver edge was also palpable about one finger breadth below the right costal margin.

A blood count revealed a slightly hypochromic anemia with 3,200,000 erythrocytes per cu. mm. and a hemoglobin of 8.1 gm. (52%). The leukocyte count was 30,600 with polys seg. 63%; poly non seg 16%; lmphocytes 17; monocytes 2; eosinophiles 1; and basophiles 1. The total serum protein was 6.48 gm./100 cc. The blood Mazzini was negative, and a urinalysis was negative except for plus one albumin.

A sternal bone marrow aspiration revealed a marked increase in the metamyelocytes and band forms. Erythopoiesis was present but proportionately decreased, with a erythroid-myeloid ratio of 1 to 4. Megakaryocytes were seen in apparently normal proportion and appearance. Conclusion: "Bone marrow findings equally consistent with leukemoid reaction or chromic granulocytic leukemia."

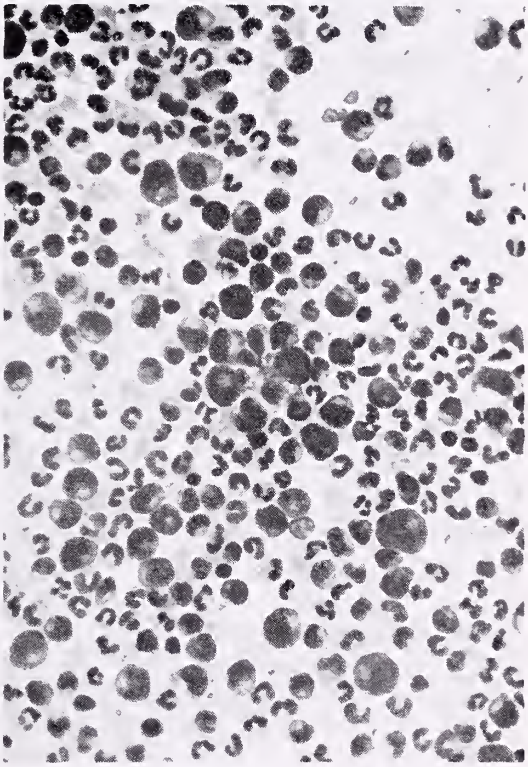

FIG. 1
Bone marrow, showing myeloid hyperplasia.

In the meanwhile, a gastrointestinal series was done, revealing involvement of almost the entire stomach by an infiltrating lesion producing numerous irregular filling defects in the cardia, both curvatures and the prepyloric region. The impression was that of neoplasm of the stomach.

A few days later the patient was admitted to the Delaware Hospital because of coffee-ground emesis.

Physical examination revealed a thin, chronically ill Negro male with the same physical findings as before. After admission he continued to vomit coffee-ground fluid with some bright red blood. Also, he had numerous grossly bloody stools. Blood pressure was maintained by transfusions of whole blood. The gastrointestinal bleeding subsided in 48 to 72 hours.

Admission Laboratory Studies: Hemogram: RBC. 1,900,000; Hb., 6.4 gm (41%); WBC,

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54,200; Polys Seg., 48; Polys Non-seg., 44; Lymphs, 6; Monos, 2; Venous platelet count, 148,000.

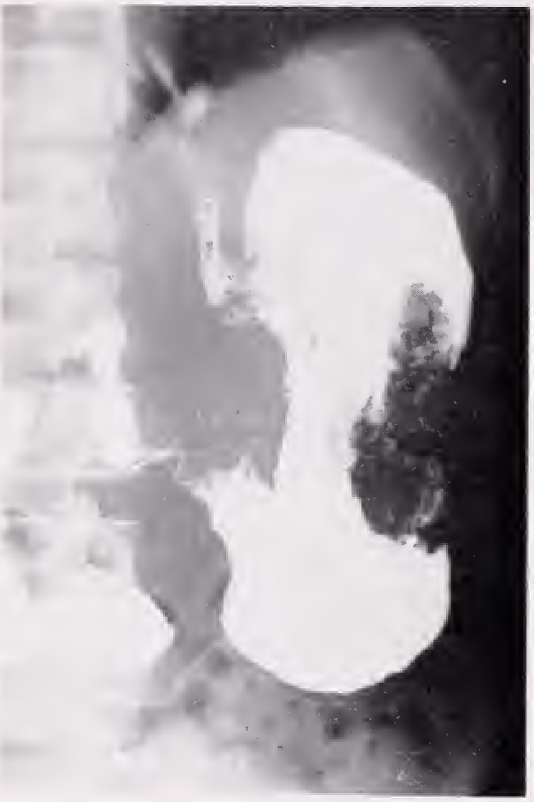

FIG. 2

GI series, showing filling defect of stomach.

BUN, 10 mg/100cc; Serum uric acid, 6.7 mg/100 cc; Serum phosphorus, 5.6 mgm/100cc; Prothrombin time, 95%; Bleeding time, 1 min. 20 sec.; Coagulation time, 3 minutes.

During the subsequent month of hospitalization the RBC and Hemoglobin were maintained at normal or near normal levels by transfusions of whole blood, and the leukocyte count ranged between 49,600 and 78,000. (Table I)

Because of the x-ray evidence of an intrinsic lesion of the stomach, it was decided that exploratory laparotomy would be performed in order to obtain a biopsy and to ascertain whether the stomach was involved with carcinomatous or lymphomatous infiltration.

At surgery the liver and spleen were found to be grossly normal. The stomach was bound to the interior surface of the left lobe of the liver, and contained a large tumor, approximately ten centimeters in diameter, which was quite firm and was felt to be carcinoma of the stomach. There were numerous apparently metastatic nodules in the omentum. Two of these were removed and the abdomen was closed. No biopsy of the primary mass was taken. Microscopic examination of the nodules revealed them to be lymph nodes showing reactive hyperplasia. (S52-25931)

TABLE 1

BLOOD COUNTS

	RBC (mill /cu.mm)	Hgb. (Gm.)	WBC (per. cu. /mm.)	Polys. Seg. (%)	Polys. Non-Seg. (%)
7/10/52	3.2	8.1	30,600	63	16
7/17/52	2.6	7.2	45,600	69	21
7/30/52	1.9	6.4	54,200	48	44
8/ 1/52	3.0	10.1	78,000	61	36
8/11/52	3.4	12.9	49,600	76	20
8/18/52	4.0	12.4	59,500	79	17
8/25/52	3.6	11.9	67,400	28	70
9/ 4/52	4.2	14.0	35,100	45	50
9/18/52	4.3	14.7	42,600	43	50
9/30/52		8.1			
10/ 2/52		7.5			
11/ 2/52	3.7	11.7	72,000	71	18

With the possibility in mind that this gastric lesion might be a lymphoma, sarcoma, or leukemic infiltration, a trial course of x-ray to the gastric region was given (tumor dose of 1000 roentgens over fourteen days). There was no symptomatic improvement and a repeat gastrointestinal series showed no regression of the gastric lesion. Therefore, it was concluded that the patient probably had advanced carcinoma of the stomach with a leukemoid reaction, and was discharged from the hospital in August, 1952 to spend the remaining days of his life with his family, and to return as an outpatient at intervals for blood transfusions.

He was brought back in November, 1952 unconscious, pulseless and with Cheyne-Stokes respirations. He was given blood, oxygen and stimulants, but expired 12 hours later. Autopsy permission was not obtained. A blood count just prior to death showed 72,000 white blood cells per cu. mm.

DISCUSSION

From the blood and bone marrow findings the diagnostic possibilities were considered to be as follows:

(1) Chronic granulocytic leukemia

(2) Gastric carcinoma with leukemoid reaction

(3) Chronic granulocytic leukemia coincident with gastric carcinoma

(4) Leukemic infiltration of the stomach

In favor of (1) were the increasing leukocytosis and the rise in per cent of immature forms. It was difficult to reconcile the lack of blast forms although in this regard Custer[1] said, "Granulocytic leukemia is the notorious faker of the group, frequently existing in its chronic form with a hyperleukocytosis and slight immaturity of granulocytes as the only evidence."

The persistence of platelets as well as the slight increase in blood phosphorus and uric acid were of equivocal value. The platelets often persist and may even increase until the terminal stages of a chronic granulocytic leukemia. The slightly high uric acid and blood phosphorus were interpreted as a manifestation of cellular hyperplasia and consistent with all four possibilities.

Possibilities (3) and (4) are considered highly improbable. Possibility (3); coexistence of a gastric neoplasm and leukemia, gains only slight support from Moore[6] who states that a person with one cancer is six times more apt to develop a second cancer than would be expected by chance alone.

Possibility (4) of leukemic infiltration of the stomach would be rare and even more unlikely in the absence of significant splenic, hepatic or lymph node enlargement. Although several such cases have been reported with lymphatic leukemia[7] it is unlikely as a manifestation of myeloid leukemia.

The second possibility of gastric carcinoma with leukemoid reaction was advanced by gastric bleeding, next by x-ray evidence and lastly laparotomy and gross interpretation of a gastric neoplasm.

Most writers on this subject postulate hemorrhage from the neoplasm or bone marrow metastasis as a stimulant for the leukocytosis. In this connection Wintrobe[8] states, "Severe hemorrhage may be followed by marked leukocytosis of the myeloid type." Custer[1] agrees with the following statement, "Severe hemorrhage is sometimes followed by neutrophilia, leukocytosis attaining heights of 50,000-75,000 per cu. mm. as a result of diffuse and rapid bone marrow hyperplasia.

A few cases of malignancy have been reported in which a leukemoid reaction was manifested without evidence of severe bleeding or bone marrow metastasis.

Morrison[9] says that a leukocytosis occurs in about 2/3 of patients with cancer. Sturgis[10] is in agreement with the above and adds that the leukocytosis is associated with an increase in band forms in 85%

Meyer & Rotter[11] report two cases of adenocarcinoma of the stomach, unassociated with bone metastases, and each showing a leukemoid picture, myeloid in type.

The case here presented was considered similar to the last two above and like them displayed no apparent bone metastases. The leukocytosis may have been a result of hemorrhage or of the gastric neoplasm.

SUMMARY

A case of marked leukocytosis associated with a gastric tumor is herein reported for discussion of the differential diagnosis, which appears to lie between (1) chronic granulocytic leukemia and (2) carcinoma of the stomach with leukemoid reaction. The evidence accumulated in this case favors the latter possibility.

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CARCINOMA OF THE ESOPHAGUS

A Case of Double Primary Carcinoma of the Gastro-intestinal Tract

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Carcinoma of the esophagus is a relatively rare disease but not uncommon. Its treatment has changed radically in the past ten years and hopes are high that the cure rate will continue to increase although some factors still need further extension and exploitation.

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From January, 1946 to September, 1952 at the Delaware Hospital, where 59,495 adult patients had been admitted, the diagnosis of carcinoma of the esophagus had been made fifteen times. In this group are included only cases of epidermoid carcinoma arising in the esophagus, excluding cases of cardia of the stomach with extension into the esophagus and extrinsic carcinoma of the lung extending into it. No case of carcinoma of the esophagus was found in children; thus, they were excluded from this study. Consequently, a percentage of 0.025% of the admissions had a carcinoma of the esophagus. In contrast, during this same period 94 cases of carcinoma of the stomach and 110 cases of carcinoma of the rectum were diagnosed, a percentage of 0.16% and 0.18% respectively. Table I shows the incidence per year of these three forementioned carcinomas.

Table 1

Year	Adult Admissions	Cases of Ca of Esophagus	Cases of Ca of Stomach	Cases of Ca of Rectum
1946	7,543	0	18	10
1947	7,873	1	15	12
1948	8,310	3	11	10
1949	8,716	3	16	23
1950	9,241	3	3	30
1951	9,989	1	8	9
1952	7,723	4	23	16

In this series of 15 cases all were male and their age varied from the youngest of 52 to the oldest of 86 years, an average of 64.4 years. The patients were predominently in their sixth and seventh decades. Merendino and Mark[1] found carcinoma of the esophagus in the ratio of 11.5 males to 1 female. Wu and Loucks[2] presented a ratio of 13 to 1 but their series also included cardia of the stomach carcinoma. The American Cancer Society in their *Statistics on Cancer*[3] for the United States in the year 1946 had a total number of carcinoma deaths to be 182,005. 3,307 of these deaths were due to carcinoma of the esophagus, a percentage of 1.8%. Of these, 2,629 were male and 678 were female, a ratio of 3.87 to 1.

The predominant complaint that urges the patient to consult his physician is dysphagia. This can range from difficulty in swallowing solid food to inability to drink liquids. Dysphagia was evident in 12 of the 15 patients, a 80% find. In the Merendino and Mark[1] series, dysphagia was present in 91.8% of the cases. Other significant symptoms which the 15 patients presented were as follows: 6 experienced substernal and back pain, 2 complained of fatigue, 6 had lost weight, 1 felt vague abdominal distress, 1 had melena, and 2 had hemoptysis. Most of the patients presented more than one of these symptoms.

The duration of the above mentioned symptoms ranged from 4 weeks to 1 year, an average of 17.2 weeks. The longer the duration the poorer is the prognosis. This is well illustrated in this series of 15 patients where the only case to be free of distant disease at the time of resection is the case to be presented in which the length of symptoms was the shortest—4 weeks.

The diagnosis was established in 9 cases by barium swallow and confirmed in 9 cases by biopsy through esophagoscopy. In the remaining cases, the diagnosis was made at autopsy or at exploration. The anatomical location of the lesion was in the upper third of the esophagus in 4 instances, in the mid-esophagus in 9 cases, and in the lower third of the esophagus in 2 cases. These figures coincide well with Merendino and Mark[1] series where in 99 cases the upper esophagus was involved 22 times, the middle esophagus 51 times, and the lower third of the esophagus 27 times. Of these 15 cases, 6 were deemed inoperable; 9 cases were explored; and of these, 3 cases were resected. Two of these resected cases died postoperatively within five days and the third was discharged well. Thus, we see an operatability rate of 60%, a resectability rate of 33-1/3% and a mortality rate of 66-2/3%. (See Table 2.) The two patients that were resected and died postoperatively were only palliative attempts since both showed evidence of extension of their disease at the time of operation. The third case was without widespread disease and

TABLE II

Location of Ca of Esoph.	No. of Cases	Not Explored	Explored Only	Resected
Upper One Third	4	2	1	1
Middle One Third	9	3	4	2
Lower One Third	2	1	1	0

this correlated well with the short duration of the symptoms and operative findings. This case is to be presented later in the paper in more detail. Wu and Loucks[2] presented 132 cases of carcinoma of the esophagus in which 90 cases were explored—an operatability rate of 68%; and of these, 57 cases were resected—a resectability rate of 63.3% in which 11 cases died postoperatively, a postoperative death rate of 19.2%. The follow up period has been too short to determine the salvage rate in 3 to 5 years. Sweet[4] mentioned in his series that during the past 12 years of all cases seen, 85% were explored and 65% had a resection performed. Of those explored 76% were operated upon successfully. Of the patients treated by resection and anastomosis, the operative mortality among those whose growth was in the lower esophagus or at the cardia was 11.6%. Among those whose tumor was in the mid-thoracic segment, the mortality was 24.3%.

In a theoretical sense Merendino and Mark[5] showed that the theoretical curability of squamous cell carcinoma is about 34%, but when all factors are considered the potential 5 year cure rate is about 20.4%. Thus far these figures cannot be approached. Sweet[4] showed a rate of 17.5% in his five year cures of carcinoma of the esophagus in the lower third and cardia. In mid-thoracic lesions the survival rate dropped to only 4% in five years. Thus much will have to be done to reach the potential rate of Merendino and Mark[1].

What are some of the factors that we as physicians can consider and utilize to bring up this cure rate?

1. Early awareness of obscure symptoms to prevent hopelessness later.
2. More frequent use of barium swallow for patients complaining of dysphagia.
3. Use of the esophoscope to confirm evidence found on barium swallow or for obscure symptoms of dysphagia not elucidated by barium swallow.

What factors does this type of tumor in itself possess that renders it difficult to remove?

1. The esophageal wall is perforated by the carcinoma not infrequently at an early stage in its development, although suppurative mediastinitis and fistulous communications with other viscera may not occur until later. The esophagus does not have the serosal coat which serves as an efficient barrier to perforations as in other organs of the lower gastro-intestinal system.
2. Esophageal carcinoma is usually highly malignant and extends intramurally up and down the esophagus for surprising lengths, sometimes far beyond the palpable margins of the tumor and at times beyond the point of transection. Contiguous organs within the chest or abdomen may be implicated at the time of operation and one may find the stomach, liver, justacardiac nodes to be involved.
3. The tumor is often inoperable at the time of diagnosis because of the degree of local invasion in the area of the tumor which occurs early.
4. The patient is not always a fit candidate for surgery or radical therapy because of the concomitant aging chances. The age group is usually in the sixth and seventh decades and in this group cardia-vascular disease is rather prevalent. This is well shown by Sweet's review[4].
5. Malnutrition may be far advanced not because of the carcinoma itself but because of the patient's inability to swallow food over long periods of time. See the statements of Merendino and Mark[1].
6. The technique of transthoracic esophagectomy and primary anastomosis involves grave physiological and anatomical problems which require skill, judgment and resourcefulness.
7. Radiation therapy is of small consequential value and this therapeutic tool cannot be used with much success.

All these factors, however, can be minimized if the diagnosis is made early when the patient presents himself for examination. A widespread educational program for the unsuspecting candidate to seek aid early for any signs of dysphagia will also assist in the fight against this carcinoma.

The treatment of carcinoma of the esophagus, since the first successful resection and eosphagogastric anastomosis in this country by Adams and Phemister[6] in 1938, has made rapid strides. Torek's[7] procedure which had been used was most unsatisfactory leaving an esophageal fistula in the neck and requiring a long plastic procedure to unite this fistula to the stomach. With the use of a primary anastomosis within the chest of a thoracic stomach the outlook has improved. Garlock and Sweet[8-16] deserve most of the credit in establishing this approach in the treatment of carcinoma of the esophagus. Sweet's[4] latest analysis of 254 cases which had been so treated in the past 12 years certainly shows what can be done for this problem and opens the future for further advancement.

Case Report

W. T., Del. Hosp., No. 191397, white male, age 70 years, entered the Delaware Hospital on April 26, 1952 complaining of difficulty in swallowing solid food for the past three weeks. He had been seen the week before in the Gastrointestinal Clinic where on physical examination a mass in the right lower quadrant and a weight loss of 30 pounds was revealed. He stated that he was only able to take semi-solid food and liquid foods but because of the occasional substernal pain, he had voluntarily restricted his diet. There were no chest or cardiovascular difficulties. X-ray studies by barium swallow revealed a constricting lesion of the mid-esophagus and by barium enema a defect in the sigmoid colon. Both lesions were interpreted as showing evidence of carcinoma. On admission, the above findings were confirmed and his weight was 115 pounds. Laboratory studies revealed hemoglobin of 78% or 12.2 gms., white blood cells—6,100 with no shift, blood sugar of 85 mg.%, blood urea nitrogen of 9 mg.%, plasma chloride of 640 mg.%, plasma CO^2 of 50 vol. %, total serum protein of 5.81 gm. %, serum albumin of 2.93 gm. %, serum globulin of 2.88 gm. %, prothrombin time 100%, negative urine, evidence of occult blood in stools by both the benzidine and guaiac tests, no free hydrocloric acid before or after histamine injection at gastric analysis with a total hydrocloric acid of 3-8 units.

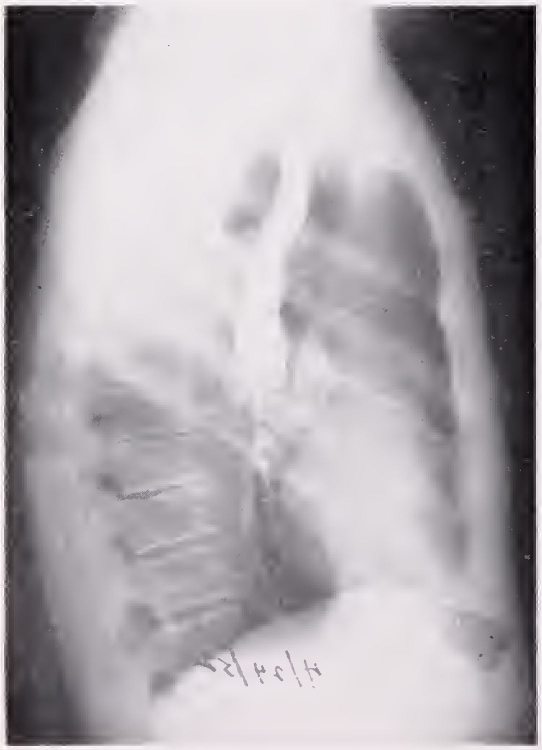

FIG. 1
Pre-operotive barium swallow, showing constricting lesion of mid-esophogus.

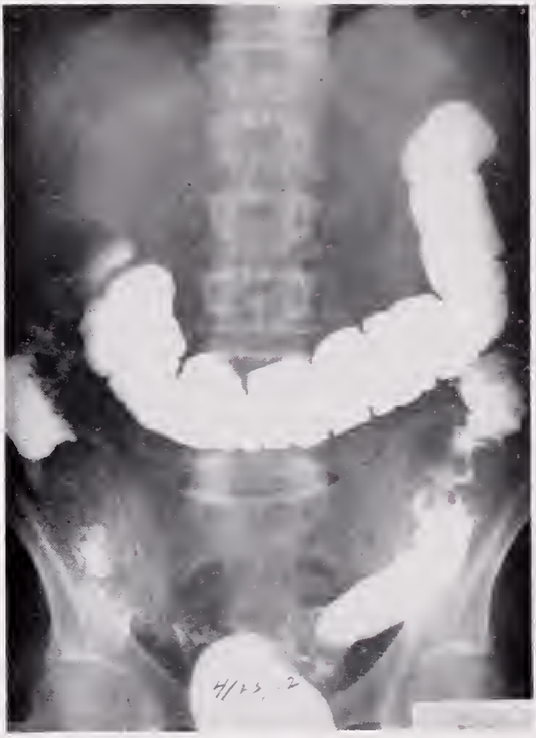

FIG. 2
Pre-operotive borium enemo, showing constricting lesion of sigmoid colon.

The patient was prepared for operation by having all loose teeth extracted and frequent mouth care given. For four days he received 250 cc of whole blood daily and was placed on a high protein, carbohydrate, vitamin liquid diet. On May 5, 1952 an esophagoscopy was performed and a biopsy taken 34 cm. down from the upper alveolar ridge which proved to be epidermoid carcinoma. On this day his laboratory count showed 4.3 million red blood cells, 14.4 gms. or 92% hemoglobin, and a hematocrit of 44.5 mm. packed cells.

Operation

On May 6, 1952 an exploratory thoracotomy was performed entering the left chest through the bed of the 7th rib using the postero-lateral approach. The posterior mediastinum was dissected and revealed the carcinoma of the esophagus which was situated below and behind the arch of the aorta measuring about 8x5 cm. in size. There was no evidence of local or distant invasion and the hilar nodes were free of disease. The dissection proceeded and the esophagus was mobilized from the arch of the aorta to the diaphragm. The diaphragm was opened by a radial incision extending from the esophageal hiatus out to the rib margin anteriorly. Exploration of the abdominal cavity revealed no evidence of disease either in the liver or about the cardiac end of the stomach. Palpation of the sigmoid colon showed the mass as seen by x-ray study. The stomach was mobilized from the liver, spleen and pancreas by ligating the short gastric arteries, left gastric artery at the coaliac axis and the left gatsro-epiploic artery; thus removing enbloc all structures in the region of the cardia. The lesser omentum was freed from the liver and the stomach mobilized distally to the duodenum on both the lesser and greater curvature preserving the blood supply at the right gastric and right gastro-epiploic arteries. This allowed the stomach to be delivered into the chest through the diaphragm. The stomach was then transected through the fundus removing the cardia and all node bearing area with the specimen. The wall of the stomach was closed using an inverting stitch of 00 chromic catgut and 4-0 black silk. The dissection was then completed from above and below the arch of the aorta freeing the tumor, and in the process the second and third intercostal arteries were ligated. This allowed the dissection to proceed proximally for a distance of 6 cm. above any palpable tumor in the esophagus. The esophagus was here transected, and the specimen removed. An eliptical incision was then made on the anterior surface of the fundus of the stomach to approximate the size of the esophagus and this portion of the stomach was removed. The anastomosis was then proceeded with using the three layer suture technic of Sweet utilizing 4-0 black silk. The anastomosis was done anterior to the arch of the aorta and above it. The Levine tube, previously passed, was inserted past the anastomosis into the stomach and the stomach was anchored to the postero-lateral surface of the chest using 4-0 black silk. The diaphragm was closed using 2-0 black silk interruptedly and a new esophageal hiatus was formed about the pylorus of the stomach. The chest was drained using a counter incision for the rubber tube in the dependent portion of the chest, 400,000 units of aqueous penicillin was instilled into the chest cavity, and the chest closed in layers using 2-0 and 4-0 black silk. The drain was placed in under water drainage with 12 cm. of suction.

The post-operative course was uneventful. He was placed in an oxygen tent for 24 hours, and had frequent endotracheal aspirations to minimize accumulations of secretions which the patient had difficulty in expectorating. The second post-operative day he was out of bed, and tube feedings were begun. On the third day the under-water chest drainage was removed, on the fourth day a liquid diet was begun, and on the fifth day the Levine tube was removed. A pleural effusion developed which was controlled by a thoracentesis on the sixth day, thereafter his course continued satisfactorily.

The pathological specimen, (S52-24893), removed at operation was sectioned revealing squamous cell carcinoma of the esophagus with invasion into the muscular wall. Examination of the distal end found 10 lymph nodes about the resected cardia of the stomach that were free of metastatic disease.

On June 4, 1952 a swallowing function test was performed and it demonstrated a well functioning esophagogastrostomy with an intra-thoracic stomach. The patient was then prepared for the next procedure of resection of the carcinoma of the sigmoid colon. The

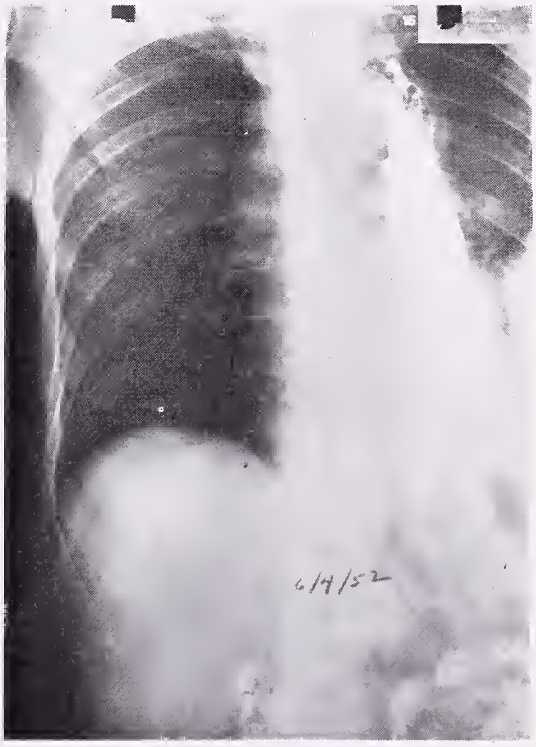

FIG. 3

Post-operative barium swallow. Normal functioning esophagogastrostomy above arch of aorta with an intrathoracic stomach.

blood work at this time revealed a red blood count of 4.3 million cells; hemoglobin of 92% —14.4 grams; hematocrit 48%; total proteins, 5.76 gm. %; albumin, 2.47 gm. %; globulin, 3.29 gm. %; urea nitrogen, 10 mg. %; and a negative urine. On June 10th, 1952 an anterior resection was performed and an end-to-end anastomosis carried out. There was no evidence at this time of local or distant metastasis. The postoperative course was uneventful and he was discharged home on a soft diet on June 27, 1952 weighing 109½ pounds. The pathological specimen, S52-25303, revealed an adenocarcinoma of the colon with extension into the muscularis and the seven lymph nodes in the mesentary were negative for tumor cells.

The patient was re-admitted from his home on July 5, 1952 because of a depressed state, refusing to eat and having diarrhea which began three days before. At this time he showed well healed incisions, marked dehydration, and mild pitting edema of both ankles. His blood work showed a red blood count of 4.1 million cells; hemoglobin, 83% —13 gms.; total proteins, 4.60 gm. %; and urine examination a two plus albumin with many white blood cells in the sediment. He was treated energetically with fluids, intranasal feedings, and a controlled diet. The diarrhea was impeded with paragoric and kaopectate. He continued to refuse feedings and became more unmanagable. On July 21, 1952 a Witzel jejunostomy was performed and feedings begun, but unfortunately the tube was pulled out and the patient continued to go downhill and expired on July 30, 1952. An autopsy was done, (A52-140), and examination of the operative sites revealed no gross or microscopic evidence of carcinoma. At the esophagogastrostomy a small superficial ulcer was present measuring one cm. in size. The heart was enlarged with evidence of failure. There was marked wasting of the entire body.

Summary

This is a review of 15 cases of carcinoma of the esophagus which have occurred in the past six years at the Delaware Hospital, with the presentation of one patient with a double primary carcinoma of the gastro-intestinal tract.

The incidence, operability rate, resectability rate, and post-operative death rate of carcinoma of the esophagus were reviewed and shown to be very poor. Factors which would improve these rates were mentioned.

Education and encouragement of patients with dysphagia to seek early medical attention and the physician to be aware of this diagnosis were stressed. More use of the diagnostic aids of barium swallow and esophagoscopy were emphasized.

The technical means to resect carcinoma of the esophagus were elucidated and proven to be effective.

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RETROPERITONEAL LIPOSARCOMA

A Case Report

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In general, the histological study of adipose tissue has been neglected and fat, known to everyone and found extensively in the body, has been the subject of little research. Its functions are to isolate the body thermal changes and to serve as a storage reservoir of carbohydrates. It is concentrated in the internal parts of the body in the neighborhood of organs, especially the kidneys, the retroperitoneal area, the mesentery, and the omentum. The thigh, popliteal space, gluteal region and the mammary gland in women are a few of the less common sites of occurrence.

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The majority of liposarcomas seem to develop in the later years of life—with a mean age of fifty years. However, they are encountered in children and one must be prepared to expect them at any age.

Adipose tissue is readily traumatized but the role that trauma plays in this tumor is felt to be a minor one. Sex does not predispose to liposarcoma, but of the cases reported in the literature, the male seems to predominate for no specific reason.

Liposarcoma can develop from pre-existing lipomas, but the large majority are malignant tumors from the beginning. They are noted for their variation and rate of growth, which is often very rapid and at other times, exceedingly slow. Between these extremes there are all grades of variation, but the greatest number exhibit slow growth and with a relatively small number spreading by metastates. The enormous size which they may obtain is illustrated by Delamatec's paper (quoted by Stout[7]) in which an enormous retroperitoneal lipoma, weighing at least 179 lbs. and possibly 275 lbs. was recorded. The spread by metastates is debatable and some feel that their cases were examples of multiple tumors, not metastatic in origin, as the tumors appeared simultaneously or successively in widely separated areas. This should not be interpreted as meaning that metastates never occur in cases of liposarcoma. They most certainly do! They metastasize less commonly than other types of sarcoma and are found most often in the lungs or pleura, liver, bone marrow and central nervous system, in this order.

The **Gross Characteristics** of liposarcoma are quite varied, but in general they form large, bulky, nodular, masses of encapsulated tissue which is always firmer than the adipose tissue of simple lipomas, but less firm than those of fibrosarcomas. They are usually yellow and opaque but run a gamut of colors from orange to pale cream. They may show a distinct tendency to break down and this causes extensive hemorrhage into its substance, or there may only be an increased vascularity. These tumors not infrequently have areas of normal fat interspersed among the sarcomatous masses.

The **Microscopic** picture of liposarcomas is even more varied than the gross and gives rise to a great variety of names which lead to confusion. The picture is usually mixed, consisting of islands of embryonic fat, adult fat, and myxomatous stroma and containing oat shaped cells containing fine granules of fat that are demonstrated only by appropriate fat stains. They show active growth and invasion. These cells may be of all sizes and shapes and show vacolization. The vacoles reveal lipoid content when stained with an appropriate fat stain. Giant cells are not unusual. Such microscopic studies lead us to look upon the liposarcomas, not as a group of separate and distinct tumor types, but as a simple group capable of different degrees of differentiation which can be described according to its predominent features, namely myeloid, adenoid or round cell, and mixed groups.

Diagnosis of any mass should be made, if possible, from the clinical history and physical examination, but a biopsy before treatment is the proper procedure. If they have reached a large size or if their growth is rapid, they should be suspected clinically and if at biopsy, they are bulky and yellow, liposarcoma is likely.

Treatment is surgical removal and wide resection is advised because of the ease of overlooking a nearby nodule. Some of the tumors are radio-sensitive and this therapy is most useful in treating small, recurrent nodules or a tumor which is in a small or inaccessible area. Some men advocated its use before surgery. The larger and the deeper the tumor, the more failures occur when treated with x-ray.

Prognosis is variable but, in general, the more cellular and less fat it contains, the more malignant it will be.

Case Report

Del. Hosp. Case No. 196974. A twenty-three year old white woman entered the hospital complaining of a lump in the right side, associated with pain. One month prior to admission the patient began to experience pain in the right flank, which radiated anteriorally and downward to the right lower quadrant. This was accompanied by episodes of nausea and vomiting but with no relationship to food intake, urination or menstruation. There had been no change in color, amount or frequency of voiding. Bowel habits had been normal. There had been no weight loss, edema or jaundice.

Past History revealed the usual childhood diseases.

Menstrual History revealed a nulliparous patient with regular periods every twenty-eight days associated with the normal amount of flow and discomfort.

Physical examination revealed a well developed, well nourished, white female in no distress, alert and cooperative. The skin and mucous membranes were of normal color and were moist. Pulse, 78; blood pressure 160 systolic, 100 distolic; temperature 99. Lungs were clear to percussion and auscultation. Heart, regular rate and rhythm, no murmurs were audible. Sounds were of good quality. Examination of the abdomen revealed a soft, yet firm palpable mass which occupied the right upper quadrant and right flank. The surface felt smooth, moved with respirations, and was thought to be encapsulated and did not appear fixed. It extended to the midline and downward to the symphysis pubis on the right. The spleen and left kidney were not palpable.

Laboratory Data. Admission urinalysis revealed a straw-color, specific gravity 1.025, albumin one plus, sugar negative; WBC 2-4/hpf; RBC, 4-6/hpf; Kahn serological test, negative. Sed. rate, 31 mm./hr.; hematocrit, 45% ; urea nitrogen, 136 mg.% ; sugar, 89 mg.%. Blood count on admission revealed RBC of 4.5; WBC, 8,100; hemoglobin, 13 gm. (86.6%); urine culture was reported as non-hemolytic streptococcus and sensitive to penicillin, streptomycin, terramycin, chloromycetin and aureomycin. A smear of the urine was reported as revealing an occasional WBC, rare RBC and non-hemolytic strep. Roentgengrams of the heart and lung fields were normal. A barium enema was completed five days after admission and was reported as revealing no intrinsic lesion of the colon but displacement of the colon anteriorally on the right by an extensive abdominal mass.

On the day of admission an i. v. pyelogram was performed and this revealed a normal left kidney and ureter. On the right side there was an enlargement of the kidney and lower pole with obliteration of the psoas muscle and evidence of impaired function and a suggestion of upper displacement of the pelvis by the abdominal mass.

A cystoscopic and right pyelogram was done under satisfactory sodium penethol anesthesia and a No. 21 Brown-Buerger cystoscope was introduced without difficulty. The bladder appeared normal. Both ureteral orifices and trigone were normal. A No. 6 X-ray catheter was passed 27 cm. up the right ureter and obstruction was encountered and passed at the utero-pelvic junction. Thirty cc. of residual urine was obtained from the right kidney pelvis. Following this a retrograde pyelogram was done on the right side and was reported as revealing evidence of a moderate hydronephrosis with obstruction at the utero-pelvic junction. In addition, this kidney showed an enlargement of the lower pole, probably due to some tumor or cystic lesion with compression of the inferior borders. There was little motility of this kidney as seen in the erect position. There was a definite line of cleavage between the lower pole and the kidney itself and the right kidney was displaced upward and laterally. The left kidney as seen in the pyelogram was normal.

Six days following admission the patient was taken to the Operating Room and under satisfactory sodium penethol and inhalation anesthesia, a curve right flank incision was made exposing a large retroperitoneal tumor. The kidney was then exposed and the upper pole seemed to be entirely normal. The tumor mass was located adjacent to the lower pole of the right kidney and extended deep into the pelvis and towards the abdominal cavity.

The tumor was easily mobilized, and removed together with the kidney.

Pathological Report (Wilmington General Hospital, 3686). The gross specimen consisted of the right kidney and an adherent tumor mass measuring 12.0 x 10.0 x 7.0 cm. The kidney measured 12.0 x 7.0 x 5.0 cm. The surface was granular and the capsule stripped with difficulty. On cut section the cortex was swollen and pale. The renal calyces were dilated and the lining hemorrhagically discolored. The ureter showed evidence of chronic inflammation. Adherent to the posterior surface of the lower pole by a fibrous adhesion was a tumor mass which separated the kidney by a well defined line of cleavage. The kidney parenchyma in this area was compressed but showed no evidence of invasion by tumor. Sections through the tumor mass revealed a soft, necrotic, gelatinous stroma with areas of cystic degeneration and hemorrhage. The mass was partially encapsulated. Microscopic sections from the tumor showed interlacing spindle-shaped cells within a myxomatous stroma. The cells showed hyperchromatism and occasional mitotic figures. The kidneys showed no evidence of invasion by tumor tissue. Tubules were filled with a purulent exudate and the stroma revealed a collection of acute inflammatory cells with formation of micro abscesses.

Diagnosis: Myxo-sarcoma.

The patient made satisfactory progress without complications and was discharged fourteen days after her admission.

The patient was admitted to the Delaware Hospital four months later, on October 27, 1952 with recurrence of the mass in the right flank. Urinalysis, blood studies, and biochemical studies were within normal limits and similar to those on the previous admission. Roentengrams of chest were normal. A flat plate of the abdomen revealed an increased density overlying the right iliac crest which was approximately 10.0 cm. in diameter and it was suggested that a reoccurrence of the previously removed tumor had occurred. Four days after admission an exploratory laparotomy was performed under satisfactory sodium penethol and cyclopropane anethesia. At the operation a large metastatic nodule was found in the incision proper. This was removed along with the surrounding muscle tissue. On opening the peritoneum no intra-peritoneal metastases were found but the whole right flank and lateral gutter were filled with lumpy sarcomatous masses. After removing large, grapefruit sized masses, tumor tissue was found along the iliac vessels and underneath the liver as far as one could reach along the vena cava. Silver slips were used to show the limits of the tumor so that irradiation could be applied in case the tumor proved to be radio sensitive. Following an uneventful post-operative convalescence the patient was discharged from the hospital and instructed to return to the Tumor Clinic for radio-therapy.

The *pathological report* grossly revealed (S-52-26953) a tumor which was soft, gray red and tan, with a glistening, gelatinous, mucoid-like surface. Microscopic study revealed similar myxosarcomatous areas as seen previously, but in general, the tumor had changed, becoming more compact with wavy bundles of spindle shaped cells together with numerous bizarre multi nucleated giant cells and numerous small vacuolated cells, the latter with regular stains, presented a honeycombed, fine net like appearance and when stained for fat were strongly positive. The giant cells were also positive with special fat stains. The diagnosis was Liposarcoma.

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THE CLINICAL USE OF BONE MARROW ASPIRATION:

Its Limitations and Methods

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The use of bone marrow examination as a diagnostic aid has gained extensive recognition in the past years. In some hospitals a marrow aspiration is almost a routine procedure for the patient admitted for diagnostic study, and some physicians have the impression that a marrow aspiration is absolutely necessary for an accurate diagnosis of anemia. The recent literature is filled with articles on the diagnosis of numerous clinical conditions simply by examining a smear of aspirated bone marrow and it is easy to understand how many clinicians have come to depend on bone marrow aspirations as the diagnostic answer to their clinical problem.

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The limitations of diagnosis with bone marrow preparations must always be kept in mind by the clinician. Dr. Roy Kracke[20] states "It is well recognized now that a study of the marrow may permit diagnosis with certainty of some conditions, such as leukemia, multiple myeloma, carcinoma, Gaucher's disease, histoplasmosis, kala-azar, and malaria. While examination of the marrow has proved to be valuable when the findings are positive, negative findings are not conclusive. After careful study of the cellular content of the marrow with respect to both the type and quantity of cells, one may be able to recognize merely a state of the marrow rather than to diagnose a specific disease. Thus, it is often possible to say only that a marrow is hyperplastic with respect to erythroblastic tissue; or that it contains an undue number of megaloblasts which indicates a deficiency of the hematopoietic factor; or that it shows an increase in the myeloid-erythroid ratio without disturbance of the maturation cycle, which would indicate an infectious disease."

The same opinion regarding the excessive use of the bone marrow aspiration as a diagnostic technique is further expressed by Dr. Maxwell Wintrobe[19] who states "It is not often that one actually needs to examine the bone marrow to make a diagnosis of pernicious anemia; although, the marrow picture in that condition is always entertaining. Likewise, in the hemolytic anemias, one is likely to find only what one should have expected."

Techniques for the aspiration of marrow have become fairly well established now that suitable instruments have been devised for this purpose and are readily available. While bone marrow has been well studied by biopsy and trephine, the present simple method of obtaining it from the sternum was not introduced until 1929 by Arinkin[1]. His method of puncture of the sternum by a stilletted needle and the aspiration of a small amount of marrow, soon proved more convenient and adaptable than the formal surgical procedure. Many different methods and needles have been devised since that time to obtain marrow. In experienced hands almost any adequate stilletted needle will suffice. Of the many types of needles, the one devised by Klima and Rosegger in Germany in 1935 has been more popular. With minor adaption of the syringe hub it became known as the Klima-Schleicher Sternal Puncture Needle. Rheingold[13] recently described a simple 16 gauge needle with a shaft of 3.3 cm. which is quite similar to the Osgood B-D marrow needle that has been in use for some years. Recently Limarzi[9] introduced another modification of the Klima needle to improve the fit of the stylet and locking device and included a Luer-Lok hub. This needle, which is probably the best of those with a guard, is known as the University of Illinois Sternal Needle.*

As the sternum was the most apparently accessible site for red bone marrow, aspirations were first performed at the midline about the level of the second or third intercostal space in adults and in the manubrium in infants. Under strict asepsis and with local anesthesia this technique gradually became an office procedure.

Recent interest has focused on other sites for bone marrow puncture. Studies have indicated that marrow from the vertebrae, ribs, crest of the ilium, and from the heads of the tibia and femur offer adequate material [11, 17]. The advantages of the iliac crest puncture have been proposed[18, 14, 13] as offering greater safety, less patient apprehension and discomfort, and more convenient repetition. The procedure is similar to sternal puncture and the marrow is entered just distal to the crest of the ilium with any of the needles used for the sternal approach. Spinous process punctures were introduced as a clinical aid by the Heidenreichs in

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*Available from V. Mueller Supply House, Chicago, Illinois.

1936[5] and more recently have been suggested[10, 6, 13] as a primary or alternative site. Loge[10] in performing spinous process punctures preferred the Klima-Schleicher needle to the Osgood B-D or similar type of needle because of the advantages in applying pressure and direction. He punctured the L3 or L4 process, whichever was the broadest, with his patient in a sitting position. Rheingold[13] recommends a face downward prone position so that needle pressure can be more readily applied and the patient lies in a relatively fixed and comfortable position. The advantages of a multiple choice for marrow puncture sites are apparent. Besides offering an alternative approach in an apprehensive patient it permits further confirmation of marrow findings in cases of potential focal involvement of the marrow.

Procedure

The preparation of aspirated marrow is probably the most important step in performing a marrow aspiration, and when it is done improperly is most often responsible for poor results. Several different methods of obtaining smears have proven satisfactory. The most adequate method and one of the simplest is to aspirate a very small amount of marrow into a syringe, (0.1 to 0.2 c.c.) following which thin smears of the marrow are made immediately. This is followed by the aspiration of 3 to 5 c.c. of marrow into a second syringe whose contents are then discharged into a tube containing heparin.* This heparinized tube of marrow is centrifuged in a Wintrobe hematocrit tube and smears of concentrated marrow are made from the buffy layer obtained. Adequate staining of marrow smears is obtained by fixing with concentrated Wright's and staining with dilute Giemsa stains.

Differential counts of aspirated marrow are unnecessary and frequently misleading. Careful observation of the marrow pattern and cytology is usually sufficient. The wide range of reported normals for marrow nucleated cell counts per cubic millimeter likewise indicate that this step should be discarded as a routine procedure.

While examination of aspirated marrow smears has offered excellent cytological material, the greatest objection to the aspiration technique has been its failure to allow for histopathological study of bone marrow structure. Dr. Roy Kracke[20] emphasized this difficulty when he stated "Aspiration of material from the marrow presents all of the disadvantages of a specimen that is inadequate for biopsy." He further recommended that it is always preferrable to have a solid piece of tissue for pathologic diagnosis rather than cellular tissue in a liquid medium, since it is only through the study of solid tissue that the true architectural pattern can be discerned. The vast amount of accumulated knowledge and limitations of marrow changes in health and disease have been well presented in a recent monograph by Custer[21].

Berman[2] introduced an excellent technical modification for preparing histological sections of solid marrow particles in the aspirated marrow. With a few modifications this procedure is employed at the Delaware Hospital laboratory. Marrow which has been allowed to clot in the aspirating syringe is immediately immersied in fixative. Any marrow particles that are found adhering to the barrel of the syringe are carefully picked up and transferred to a drop of plasma with the aid of the pointed ends of split wood applicators. To this is added a minute amount of topical thrombin. The presence of thrombin causes clotting of the plasma, which includes the marrow particles. This clot is then transferred to a fixing solution and all material is then processed as in other tissue for histologic section.

Marrow interpretation should be made by one well trained in the field of hematology, but without related hematological studies it is often a wasted effort.

The well planned use of a marrow study can be a valuable diagnostic aid when preceded by a complete hematological study of the peripheral blood, history, physical findings and general clinical picture. Careful study of the hematology reports will often dismiss the need for marrow studies which is a procedure requiring experience and time. Often a smear of a buffy coat of centrifuged blood will offer more information than the marrow itself, particularly if the marrow smear is not representative.

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* 0.1-0.2 c.c. (2 mg.) Liquaemin (Organon brand of Sodium Salt Heparin).

However tempting it may be, marrow studies should not be run without careful analysis of the real benefit to be gained.

In the average hospital marrow studies offer little benefit in most of the anemias. With the leukemias, particularly the aleukemic variety, it is often very helpful. When coupled with marrow sections it is of diagnostic benefit in cases of pancytopenia. One always must be cautious in evaluating the pancytopenic condition from smears alone knowing that marrow can have patchy involvement and that the aspirate can be nonrepresentative.

In general the number of cases where marrow is a specific diagnostic aid are infrequent in the average hospital. With multiple myeloma, for example, no single examination offers more conclusive findings. However, such cases are uncommon.

With thoughtful approach and study and careful procedure using both smear and sections of marrow aspirate diagnostic benefit will be gained, while routine indiscriminate use will but classify this valuable aid as a fruitless gesture.

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THE OCCURRENCE OF MEMBERS OF THE TRIBE MIMEAE IN HUMAN INFECTIONS

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The increasing frequency of isolation of a heretofore unidentified group of gram-negative bacilli from clinical specimens has prompted this report.

Review of the Literature

De Bord[1], in 1939 described an organism isolated from normal and pathological vaginal and conjunctival secretions. He named the group *Mimeae* (Greek—to imitate) because of their similarity to the neisseria in their morphology and staining reaction. He subsequently described three genera[2], based primarily on their ability to attack carbohydrates: (1) *Mima polymorpha* (var. oxidans); (2) *Herellea vaginocola;* (3) *Colloides anoxydana.* Members of the tribe shared the following characteristics: pleomorphism, with diplococcal forms reverting to bacilli; a bipolar gram-negative stain; encapsulated initially with smooth, butyrous to mucoid colonies.

De Bord[3], in a study of 147 cases of conjunctivitis, vaginitis and normal secretions, pointed out that about 30% of the positive cultures, although indistinguishable morphologically from the gonococcus, were members of the tribe *Mimeae.* As a result of this investigation, he stated that identification of the gonococcus by smear alone was not justified.

Deacon[4], in 1945, reported the isolation of 19 strains of microorganisms which he identified as *Mimeae.* They were recovered from therapy-resistant gonorrhea, war wounds, cerebrospinal fluid and brain tissue following head injuries. A strain of *M. polymorpha* (var. oxidans) from a wound proved lethal to a guinea pig following intraperitoneal injection, and 9 strains of *H. vaginocola* killed guinea pigs injected intraperitoneally, but not subcutaneously.

De Bord[5] described a non-fatal case of meningitis from whose cerebrospinal fluid a gram-negative diplococcus resembling a meningococcus was isolated. The organism, identified as *M. polymorpha*, was pathogenic for mice when injected intraperitoneally. The patient recovered following sulfonamide therapy.

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In 1948 Schaub and Hauber[6] reported the recovery of 15 identical gram-negative bacilli (the majority from urine), which had been submitted for identification. A comprehensive study, including biochemical and serological tests, revealed a previously undescribed species, for which the authors proposed the name *Bact. anitratum*. The organisms were pathogenic for mice and guinea pigs injected intraperitoneally. Ewing[7] in 1949 demonstrated the relationship of *Bact. anitratum* to De Bord's *Herellea*, and suggested it be classified as a member of the *Mimeae*. His study also indicated several serotypes based on capsular and somatic antigens.

Faust and Hood[8] reported a fatal case of fulminating septicemia, whose admission blood culture revealed a neisseria-like organism. This was subsequently identified by biochemical and serological methods as *M. polymorpha* (var. oxydans). Pike and others,[9] reported the isolation of *M. polymorpha* from a child with subacute bacterial endocarditis following cardiac surgery. Two blood cultures and one bone marrow culture were positive for this organism one and one half years after operation. It was sensitive *in vitro* to terramycin, and the patient was treated with this antibiotic. Five subsequent blood cultures showed no growth, and the patient remained afebrile and asymptomatic in the ensuing four months.

SOURCE OF CULTURES

In the past year 24 strains of *Mimeae* have been isolated in our laboratories from a variety of clinical specimens. Half of these were recovered from females, and the overall age group ranged from a newborn infant to an 82 year old male patient. The organisms were isolated most frequently from the urinary tract (10) and upper respiratory tract (7), including bronchial secretions. They were also found frequently in conjunction with other pathogens from the conjunctiva and ears. Only one blood culture (a newborn with an unexplained fever postpartum) was positive for *Mimeae*, probably representing a transient bacteremia.

CULTURAL CHARACTERISTICS

Our interest in this group of microorganisms was originally stimulated by Dr. Martha K. Ward, in charge of the Special Bacteriology Laboratory, Communicable Disease Center, United States Public Health Service. Dr. Ward has confirmed the biochemical reactions on all of our strains, and has carried out serological identifications on all the strains.

Twenty-three of the twenty-four cultures exhibited similar biochemical characteristics, and were classified into De Bord's *Herellea* group. All strains produced an alkaline slant and neutral butt on triple sugar iron agar, and characteristic coliform-like colonies on blood agar plates, with varying degrees of pigmentation and hemolysis. A typical odor, not unlike seminal fluid, was apparent on blood agar. The group was most frequently confused with pseudomonads and *Alcaligenes* species, but produced no green water-soluble pigment, and uniformly fermented dextrose and xylose, with acid production only. Most strains failed to reduce nitrates or hydrolyse urea, and all strains were nonmotile. Citrate was uniformly utilized and indol was not formed.

The susceptibility to antibiotics, as determined by *in vitro* disc testing revealed a uniform pattern. The majority of strains were sensitive to aureomycin and terramycin, but resistant to chloromycetin and streptomycin. When resistance to aureomycin and terramycin were demonstrated, resistance to chloromycetin and streptomycin invariably followed. Insufficient data on sensitivities to polymyxin and neomycin were accumulated. All strains were resistant to penicillin.

DISCUSSION

Although De Bord's original work points out the importance of distinguishing *Mimeae* from gonococci, it becomes apparent that the *Herellea* group are more frequently isolated, and less likely to be confused. Ward[10] has indicated that "by far, the greatest percentage of strains we have received for reference diagnosis fall into the group that De Bord called *Herellea*."

The role of members of the tribe *Mimeae* as etiological agents in human infections gives rise to some speculation. At this writing, no one has reported on their natural habitat or possible method of transfer. Are they merely ubiquitous opportunists, with a predilection for the urinary tract or upper respiratory passages? Have they emerged as a result of antibiotic therapy primarily directed (as with penicillin) against pyogenic cocci? It becomes rhetorical to state that these and other questions can only be answered by further investigative studies.

Summary

1. The occurrence of members of DeBord's *Mimeae*, a group of gram-negative bacilli is reported.
2. The source of these organisms, their cultural characteristics and their *in vitro* sensitivities to antibiotics is presented.

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CLINICOPATHOLOGIC CASE REPORT

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Presentation of Case***

The patient, a 49 year old colored male, was first admitted to the Delaware Hospital on 2/17/50 with the chief complaint of swollen ankles. Patient claimed to have been in usual state of good health until approximately 3 weeks prior to admission when ankle edema developed. The edema became progressively more severe and scrotal edema occurred and had become progressively worse. Patient also states he has had slight shortness of breath on exertion. He also complained of a slight cough productive of whitish sputum. Patient was a bricklayer and had continued working until admission to hospital. Patient also states that the edema had progressed upward involving legs first, then genitalia, and then abdomen. Past Medical History: revealed that the patient had been treated for syphilis in 1940. He had no operations. Systemic Review: Head; normal. Cardiorespiratory system: normal. G. I. system: occasionally there is right upper quadrant pain, with present illness. G. U. system: normal. Endocrine system: normal. Physical Examination: Blood pressure 180/116; pulse 72. The patient is a well developed, well nourished negro male in no acute distress. Head: Eyes, pupils round and equal, react to light and accommodation. Fundi: moderate sclerosis of retinal vessels; pallor of retinae, and A V nicking. No hemorrhage, exudates or papilledema. Ears, Nose & Throat: mucous membranes of a normal color, moist non-inflammed. Nose is normal. Ears are normal. Neck—slight mandibular adenopathy. Thyroid is palpable low down in sternal notch. Trachea in midline. Chest: Lungs—breath sounds diminished to absent at right base especially postero-laterally. Breath sounds at left base diminished posteriorly. No definite rales were heard. There is dullness to percussion at the right base. Tactile fremitis absent at the right base and diminished at the left base. Heart: rhythm irregular, apparently due to auricular fibrillation. No definite murmurs heard. Heart size appoximately normal. No thrills palpated. Abdomen: slightly taut and fluid wave demonstrated. Liver: not palpable. No other organs or masses felt. There is moderate right upper quadrant tenderness. Genitalia: moderate penile edema and tremendous edema of scrotum. Extremities: four plus pitting edema of both lower extremities.

Laboratory Studies: Hgb. 86%, 13.5 gms. WBC 5,400; polys seg 63%; lymphs 24%; eosinophiles 11%; BUN 20 mg.%; serum cholesterol 376 mg.%; Wassermann, plus 4. Urinalysis: sp. gravity 1.004; reaction—alk.; albumin plus 1; sugar and acetone negative; occasional WBC/hpf; occasional hyaline cast per hpf; occasional squamous epithelial cells. Chest x-ray taken at time of admission showed a heart shadow within normal limits with some slight engorgement of the vascular shadows of the hilar regions of the lungs and some pleural effusion at the right base obliterating the right cardiophrenic angle.

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*** Delaware Hospital Case No. 168947, presented at Staff Clinical Pathology Conference.

Patient was treated while in the hospital with digitoxin, thiomerin and ammonium chloride. EKG showed marked respiratory arrhythmia with moderate bradycardia. The tracing was otherwise normal. Patient did well; edema subsided and by 2/24/50 he became asymptomatic. Blood pressure while in the hospital varied from 140/100 to 150/110 to 130/80. On discharge blood pressure was recorded at 110/80. Patient was discharged on digitalis maintenance therapy, mercurial diuretics and referred to Medical Clinic for follow-up and to GU Clinic for antiluetic therapy.

Patient's second admission to hospital was on 12/28/50 when he was admitted with shortness of breath and pain in chest. The night previous to admission he was seen in the Emergency Department and given a morphine injection. Apparently he did well for a few hours but then developed a "tremor like seizure and felt badly." He then became progressively worse and was admitted to the hospital.

Physical Examination: revealed a negro male who was in acute distress. Breathing was labored and patient was semicomatose, tossing about quite energetically. Blood pressure 168/94; pulse 120 and regular. Temperature 98° (F). Head normal. Face—on the left side is flattened and there is a blowing out of left cheek with each expiratory phase, which is not present on the right side. Eyes normal. Ears normal. Nose normal. Mouth normal. Neck questionable nuchal rigidity. There is venous distention. Trachea is in the midline. Chest—equal expansion bilaterally. Percussion note is dull in the lower bases bilaterally. Numerous rales throughout both lung fields. Heart: point of maximum impulse to the left of midclavicular line. No thrills or shocks palpable. Heart does not appear enlarged to percussion. Heart sounds are regular and strong. Tachycardia is present. Liver is questionably palpable 1-2 fingers below the costal cage. Genitalia: normal male. Extremities: There is hyperreflexia of all four extremities. No pathologic reflexes present. Some beginning flaccidity of left arm. There is two plus pitting edema of ankles.

Patient was treated with an indwelling catheter, digitalis leaf and crystacillin. Hexavitamins and gelusil were also used. During hospitalization patient was a fluid balance problem. BUN was elevated and the CO^2 decreased. Renal output was poor. He was treated with intravenous fluids varying from glucose in water to 1/6 M. lactate in order to correct electrolyte balance. On 1/16/51 patient was reported to be passing bright red blood by rectum. He appeared to have passed several cc. Examination failed to reveal bleeding point. Blood pressure 110/80; pulse 110. Patient complained of rectal pain. Abdomen was soft with normal peristalsis. On 1/27/51 patient began vomiting and respirations became labored; feces at that time were noted to be tarry. Patient expired uneventfully at this time.

Laboratory Studies EKG: 1/3/51 showed sinus tachycardia with ST changes of a non specific nature. No evidence of old or recent myocardial infarction noted. The pattern could represent functional coronary insufficiency. 1/15/51 EKG showed changes consistent with digitalis effect were present. 1/24/51 EKG showed improvement with erection of T waves in chest leads and limb leads. There is evidence of potassium intoxication. Hematology: 12/29/50-RBC 2.3; Hgb. 48%, 7.6 gm.; WBC 10,300; polys seg 80%; lymphs 15%. 1/10/51 RBC 2.2; Hgb 41%, 6.4 gm.; WBC 17,800; Polys seg 56%; nonsegs 24%; lymphs 18%. Toxic degeneration marked. Chemistry: 12/29/50 — sugar 71 mg.%; BUN 98%; phosphorous 6.9 mg.%; calcium 12 mg.%. 1/3/51—BUN 155 mg.%; creatinine 9 mg.%; chlorides 750 mg.%; CO^2 11 vol.%; potassium 5.2 mEq/L; sodium 157 mEq/L 1/8/51—BUN 234 mg.%; chlorides 640 mg.%; CO^2 19 vol.%. 1/9/51 potassium 5.1 mEq/L; sodium 150 mEq/L 1/11/51—BUN 300 mg.%; creatinine 11 mg.%; plasma chlorides 660 mg.%; phosphorous 11.3 mg.%; 1/13/51—BUN 440 mg.%; total serum protein 5.14 gm.%; albumin 1.89 gm.%; globulin 3.25 gm.%. 1/15/51—BUN 400 mg.%; plasma chlorides 600 mg.%; CO^2 28 vol.%; phosphorous 10.3 mg.%: potassium 5 mEq/L; sodium 130 mEq/L 1/21/51—Sodium 142 mEq/L; postassium 6.8 mEq/L. 1/27/51—BUN 515 mg.%; serum chlorides

540 mg.%; CO^2 43 vol.%; potassium 5.4 mEq/L; sodium 130 mEq/L 12/29/50 — spinal fluid clear, colorless, and less than one white blood cell per cubic millimeter. Serology: 1/13/51—Mazzini—negative. Bacteriology: 1/13/51—spinal fluid: stained sediment negative. Culture no growth. 1/13/51—urine culture negative for enteric pathogens. 12/29/50—Blood culture—no growth aerobic or anaerobically. 1/24/51—urine chlorides 10.7 gm. per 24 hours. Patient was given 1500 cc. of washed red blood cells during hospitalization. Stool: 1/15/51 — benzidine plus four; guaiac test positive. Urinalysis: 12/28/50—specific gravity: 1.010; reaction acid; albumin plus three; sugar negative; acetone negative; RBC 10-20; WBC 10-30. 1/8/51 — specific gravity: 1.001; reaction alkaline; albumin plus four; sugar negative; acetone negative; RBC occasional; WBC 8-10; crystals, numerous triple phosphates. 1/26/51—specific gravity: 1.010; reaction alkaline; albumin plus four; sugar negative; acetone negative; WBC few.

Differential Diagnosis

Dr. Eugene F. Milewski: On first consideration of the initial admission, the primary picture appears to be one of the cardiac insufficiency with secondary renal involvement; However, further study reveals abscence of cardiomegaly, no EKG changes, a bradycardia and no evidence of hepatomegaly or actual pulmonary congestion. The distribution of edema seems to be of renal rather than cardiac nature. We know that renal pathology can also produce the picture above (edema, effusion, elevated BUN, albuminuria, etc.) and the elevated cholesterol also favors primary renal disease. Sufficient data however is not available to differentiate the etiology.

Eosinophilia is not readily explained and since there was only one reported blood count, too much importance can not be attached to this finding; however, lupus erythematosus, periarteritis nodosa and other causes of increased eosinophiles were ruled out on the absence of skin rash, leukocytosis, and other substantiating data necessary.

On the second admission we have a patient in obvious terminal status exhibiting the classical signs of advanced uremia, namely, hypertension, anemia, edema, urine of fixed specific gravity, albuminuria, hematuria, elevated BUN, hyperphosphatemia and acidosis. The central nervous system involvement can probably be explained on the basis of uremia, but we find no mention of any persistence of neurological findings throughout the hospital stay, which we should expect if this were cerebral hemorrhage due to uremia; therefore, I shall assume this patient had had a cerebrovascular thrombosis on admission which cleared during hospitalization.

Since our primary concern is the renal disease process I have considered several entities which terminally produce the uremic syndrome. To establish the diagnosis of arteriolar nephrosclerosis secondary to malignant hypertension we should expect a long standing history of hypertension of much higher levels than those reported above, a tremendous cardiac hypertrophy and a far advanced retinopathy.

Bilateral hydronephrosis was next entertained as a possibility but, without an abdominal mass, history of fever, chills or colicy pain, this enity is an unlikely cause of our patient's uremia.

The third disease process, which is probably most difficult to rule out and especially so in the terminal phases of renal disease, is bilateral pyelonephritis. In spite of the positive urine culture on one occasion we have no history of an acute attack with recurrences, no evidence of fever and chills, no lumbar pain or CVA tenderness, and therefore we can only consider this entity a possibility.

Chronic glomerulonephritis in its terminal stage produces a similar picture of uremia to the above, and there are several findings here in favor of this diagnosis, namely the decrease in total proteins and albumin fraction and the transient hypertension. In retrospect considering the initial admission as a nephrotic phase of glomerulo-nephritis progressing into the latent stage, I feel that this is the entity responsible for the terminal uremia.

In conclusion we must decide if the gastrointestinal hemorrhage was due to uremia or other gastrointestinal pathology. The findings of RUQ pain and tenderness, hematemesis and melena should in all cases be considered peptic ulcer until proved otherwise since this is the most frequent source of bleeding from the upper G. I. tract, the incidence ranging from 60 to 75%. The lack of response to transfusion would also favor hemorrhage due to intrinsic pathology rather than anemia due to bone marrow suppression in uremia. Statistically, without further studies available for a definite diagnosis, we must consider the possibility of a bleeding duodenal ulcer as a contributing factor to the anemia, uremia and final demise.

Summarizing the discussion, it is my impression that this patient entered the hospital in the nephrotic stage of glomerulonephritis, passed into the latent stage for the interim, returning approximately 10 months later in the terminal status of uremia due to chronic glomerulonephritis with an associated cardiac insufficiency, a cerebrovascular thrombosis and bleeding duodenal ulcer.

Clinical Diagnosis

1. Uremia
2. Chronic Glomerulonephritis
3. Duodenal Ulcer
4. Cerebrovascular Thrombosis

Pathological Discussion

Dr. Huntington: Participation in the discussion by those physicians present at the conference resulted in the following list of diagnoses for the cause of death: Chronic glomerulonephritis; Duodenal ulcer; Cardiac insufficiency; Cerebral Vascular accident; Nephrotic syndrome with terminal uremia; Arteriolar nephrosclerosis; Periarteritis nodosa; Polycystic kidneys; Lupus erythematosis disseminata; Syphilis (Hepar lobatum, Cerebrospinal, Renal); Tuberculosis; Multiple myeloma; and Hyperparathyroidism.

Autopsy Findings. The most dramatic findings were in the abdomen. The peritoneal cavity contained 3000 c.c. of thick yellow creamy exudate. The peritoneal surface was not inflamed or injected. The source of this exudate was apparently a duodenal ulcer located three centimeters below the pylorus. It measured 2.5 by 1.7 cm. and was undermining and had rolled edges. The base was on the pancreas and contained numerous organized thrombi. The posterior portion, adjacent to the liver, showed a minute perforation. The lesion proved to be benign on microscopic examination. There was also much organized old and new blood throughout the gastrointestinal tract. The heart was dilated both on the right and left side and showed evidence of myocardial degeneration. The lungs were edematous throughout all lobes. The kidneys were of normal weight, but appeared rather pale grossly. The microscopic findings were typical of a chronic glomerulonephritis. Postmortem spinal fluid chemistries showed a urea nitrogen of 425 mg.% and a carbon dioxide combining power of 14 volumes per cent.

Pathological Diagnosis

1. *Uremia*
2. *Chronic glomerulonephritis*
3. *Duodenal ulcer with perforation*

BOOK REVIEW

Modern Drug Encyclopedia and Therapeutic Index. Edited by Marion E. Howard, M. D. Fifth edition. Pp. 1431. Cloth. Price, $15.00. New York: Drug Publications, Incorporated, 1952.

This new edition of Modern Drug Encylopedia appears only two years after the Fourth Edition, which indicates the rapid changes taking place in this field of publication. The volume deals with 3750 drugs, nearly 1500 of them brand new listings and saves hours of time in check-up on the latest out-put of America's leading 175 manufacturers. For medical authors and editors the work is particularly valuable in that it differentiates immediately the official drugs from the newer drugs which have registered trade marks and which should be differentiated either by the use of a capital letter or the small capital R in a circle. In fact, this editor has found this volume indespensable and refers to it oftener than he does to the U.S.P. or N.F. The data concerning each drug is complete, including its chemical composition, action, uses, supply, dosage, cautions, and contra-indications. Finally, the book concludes with a therapeutic index, generic index, manufacturers and distributors index, and a general index, these four indices totaling 216 pages.

With the purchase of this volume goes a quarterly cumulative supplement entitled Modern Drugs, which will be supplied free until the next edition appears. The volume, with the supplement, is one that can be wholeheartedly recommended to the profession; certainly every hospital and medical library should have it.

Editorials

DELAWARE STATE
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Farnhurst, Del.

Vol. 25 January, 1953 No. 1

Dues For 1953

Annual dues of members of the Medical Society of Delaware are payable January 1, 1953, and the deadline for such payment is April 30, 1953. Dues remain at $25.00 per year. Dues for membership acquired after April 30 will be $12.50. Payment is waived in the following classifications:

1. Honorary Members—Those who have attained the age of 70 years and who have been in good standing in their County and State societies for 30 or more years. This exemptions begins on the January 1st after they have attained the age of 70 years.

2. Military Members—Those who are called to active duty with the Armed Forces of the United States. Such members shall pay the dues for the year in which they are inducted into service, but shall not pay the dues for the year in which they are mustered out. This exemption does not apply to "career" men.

3. Retired Members—Those who have retired from the practice of medicine and who *derive no part of their income* from the practice of medicine. Notice of bona fide retirement should be sent by the County Society Secretary to the State Society Secretary.

4. Hardship Cases—Those for whom the payment of dues would constitute a financial hardship, as determined by their local County society. Notice of such cases should be sent by the County Secretary to the State Secretary.

Members in these classifications will receive the Delaware State Medical Journal without charge. Our state treasurer cannot accept dues directly from members; payment should be made to the County Treasurer, who will remit to the State Treasurer on the 10th of each month.

AMA dues are due January 1, and the deadline for such payment is June 1. AMA dues for 1953 also remain at $25.00 per year. Dues for membership acquired after July 1 will be $12.50. The AMA will not accept remittances directly from members, and all such dues should be paid to the County Treasurer for transmittal to the State Treasurer and through him to the AMA. AMA dues are waived in the following classifications:

1. Age 70 years. Requests should be made *by the members directly* to the AMA. Exemption begins as in Item 1, above. Members thus exempted will not receive the JAMA unless the regular subscription price of $15.00 is remitted directly to Chicago.

2. Military service. Members called into active service with the Armed Forces of the United States, and exemption begins on January 1 or July 1 following entrance on active duty.

3. Retired Members. Under same regulations as in Item 3, above.

4. Hardship Cases. Under same regulations as in Item 4, above.

Further discussion of the AMA dues will be found in The Journal for January, 1952, page 33.

County Society dues remain as heretofore: New Castle, $10.00; Kent, $5.00; Sussex, $10.00. County dues are payable January 1, and the deadline for such payments is April 30.

Prompt and strict observance of the above regulations will make much easier the task of the officers of the County, State, and National Societies. Your status as a "good" member is more important than you may realize. We bespeak your thoughtful cooperation.

Directories

Complete State, County, and miscellaneous directories will be published in the February issue. Cut out that page and keep it—you will find it useful.

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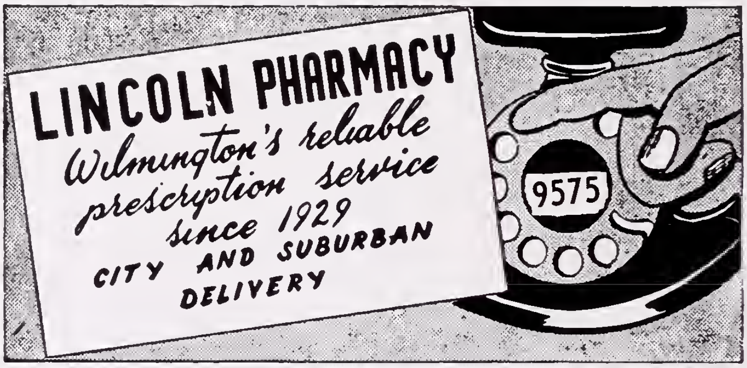

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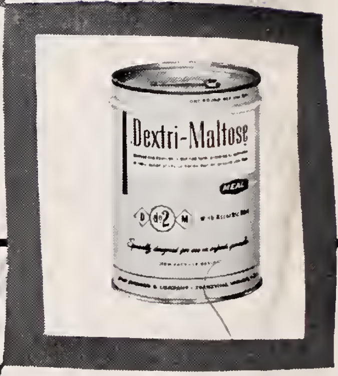

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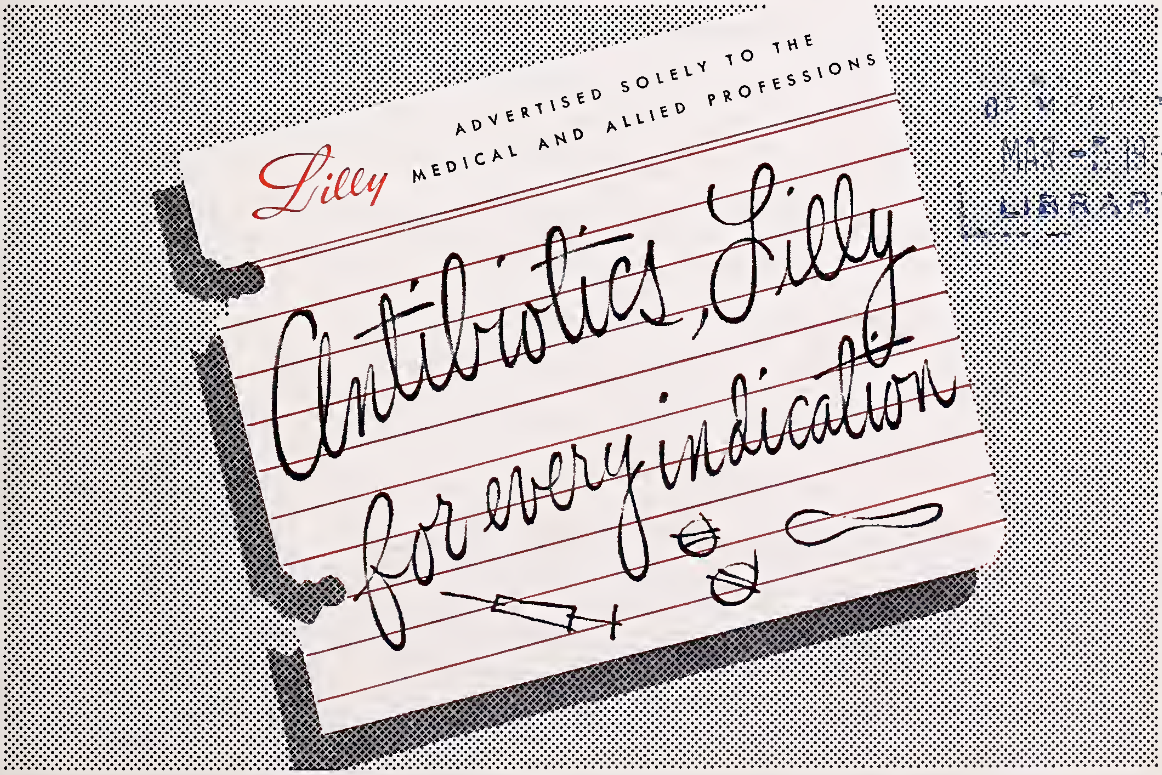
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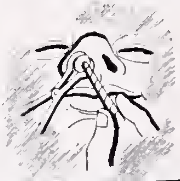

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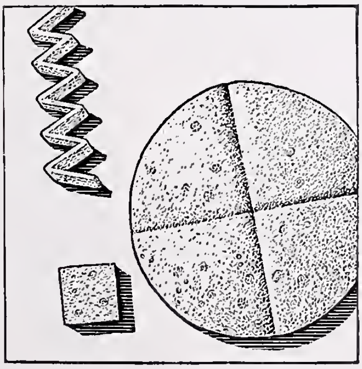

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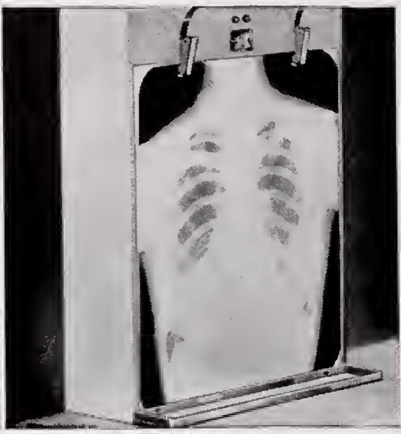

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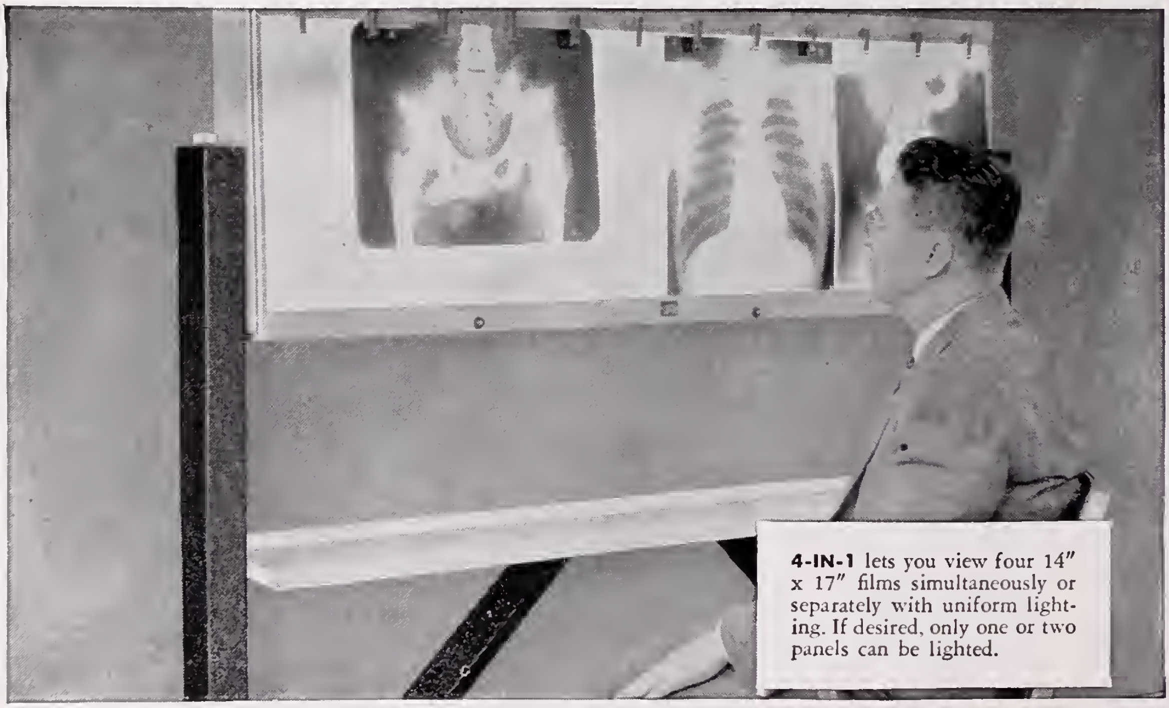

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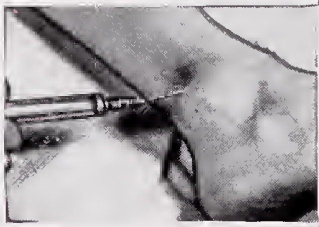

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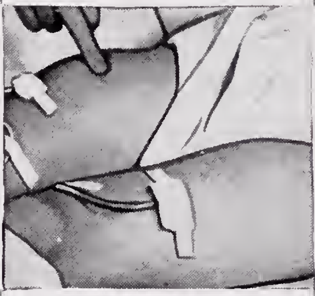

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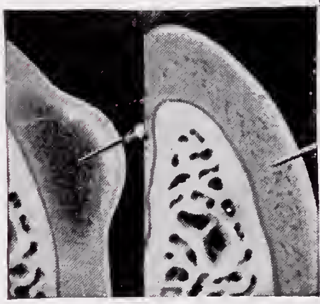

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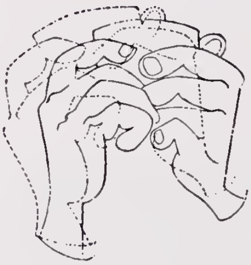

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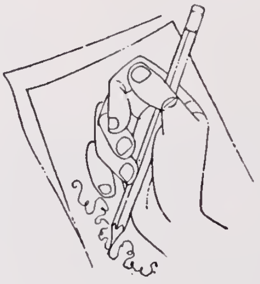

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*Beckman, H.: Pharmacology in Clinical Practice, Philadelphia, W. B. Saunders Company, 1952, p. 361.

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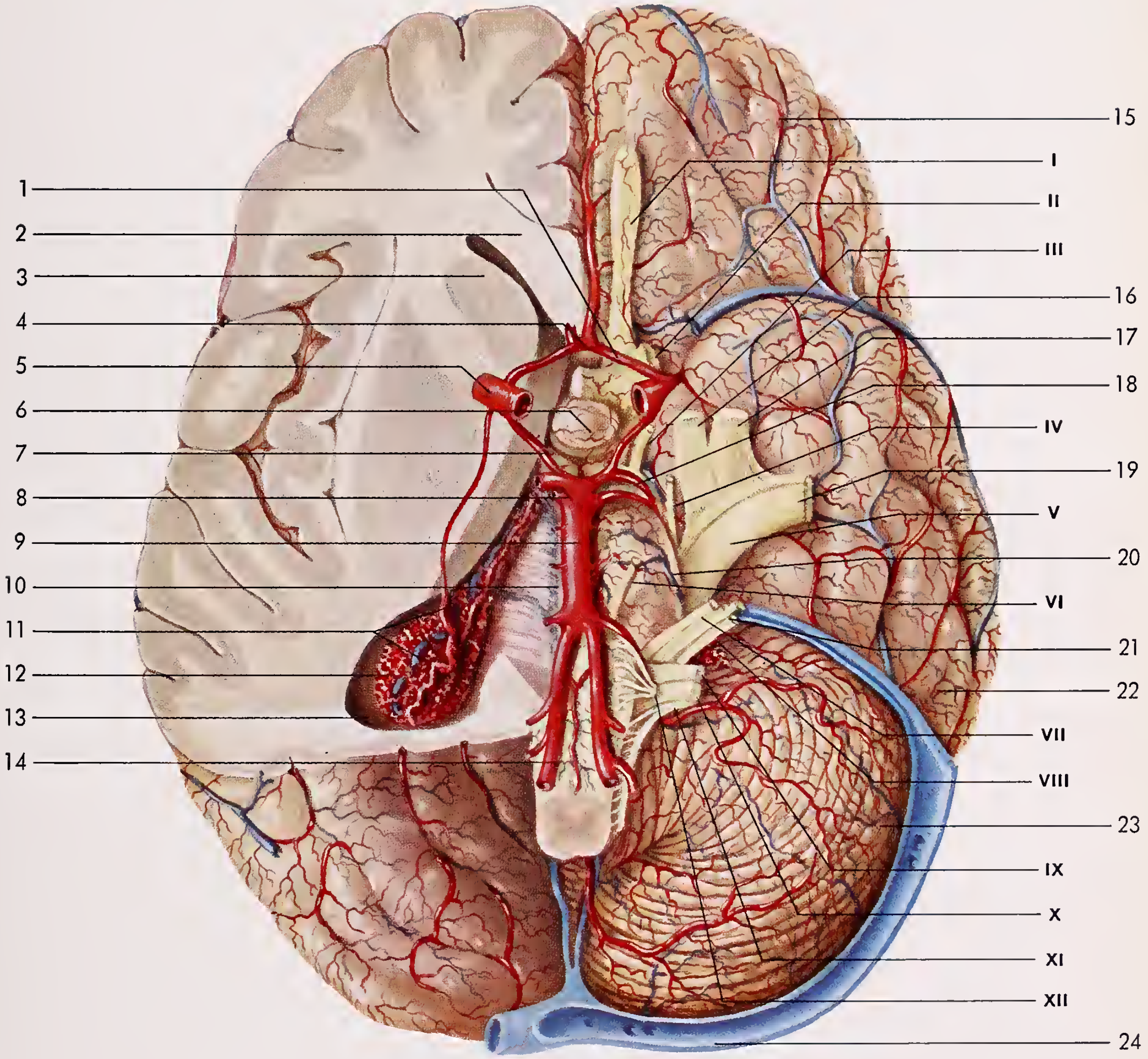

1. Anterior cerebral artery
2. Trunk of corpus callosum
3. Head of caudate nucleus
4. Anterior communicating artery
5. Middle cerebral artery
6. Hypophysis
7. Posterior communicating artery
8. Superior cerebellar artery
9. Basilar artery
10. Internal cerebral vein
11. Choroid artery and vein
12. Choroid plexus of lateral ventricle
13. Inferior cornu of lateral ventricle
14. Vertebral artery
15. Frontal lobe
16. Ophthalmic nerve
17. Maxillary nerve
18. Posterior cerebral artery
19. Mandibular nerve
20. Pons
21. Intermediate nerve
22. Temporal lobe
23. Cerebellum
24. Left transverse sinus

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X. Vagus nerve
XI. Accessory nerve
XII. Hypoglossal nerve

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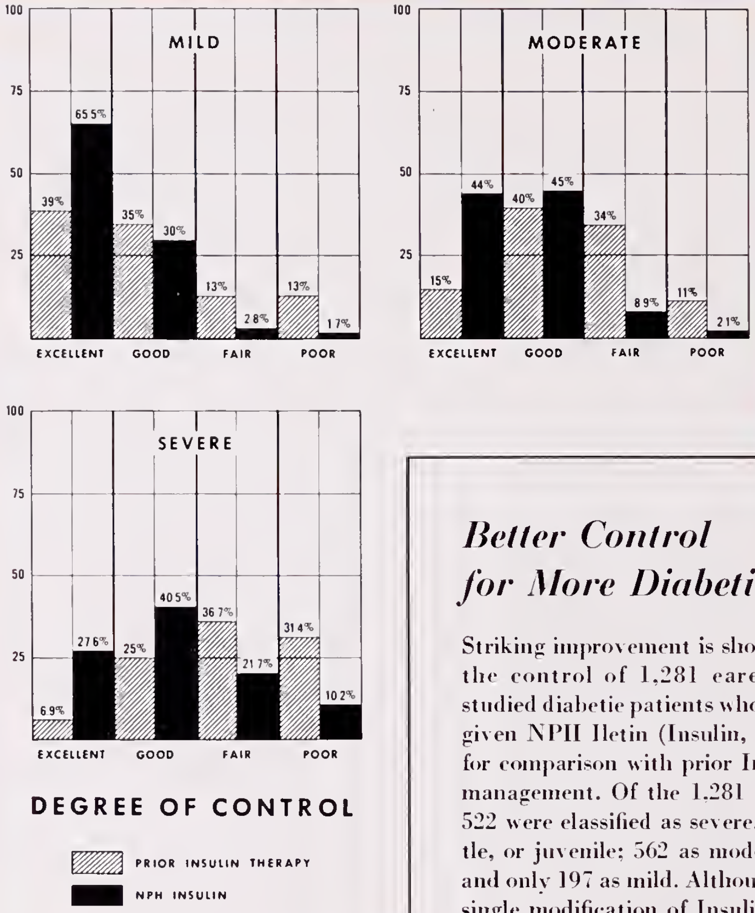

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THE PLACE OF DRUGS IN THE TREATMENT OF RHEUMATOID ARTHRITIS*

JOHN LANSBURY, M. D.,**
Philadelphia, Pa.

Chronic arthritis can usually be diagnosed without great difficulty. The main differential diagnosis is between degenerative joint disease, gout, and rheumatoid arthritis. Degenerative joint disease (osteoarthritis) occurs only in people of middle or past middle age and is characterized by the absence of systemic effects, such as fatigue, anemia and weakness, by prompt relief of pain on rest, by the presence of fine crepitation in the affected joints, and by marginal proliferative changes by x-ray. Gout is confined almost entirely to males; its early course is episodic with complete remissions. The extreme pain in the acute attack, the elevation of serum uric acid, and late in the disease, the presence of tophi are important points in differentiating it from other types of arthritis.

Time does not permit a description of the clinical picture of rheumatoid arthritis, and I merely mention these distinguishing features of osteoarthritis and gout. Naturally there are many exceptions to these criteria in the less typical cases, but they will nevertheless serve as a useful guide in diagnosis.

The differential diagnosis is a case of subacute arthritis is, on the other hand, often exceedingly difficult. Here one must exclude a large number of systemic diseases which are associated with articular pain and swelling, and particularly one must distinguish between the "Collagen Diseases"—rheumatic fever, disseminated lupus erythematosus, and the rarer periarteritis nodosa, dermatomyositis and scleroderma. Time does not permit any discussion of the differential diagnosis of this group of diseases and I mention them only to emphasize the importance of accurate diagnosis which is so essential to good treatment. The best medicine is useless if used for the wrong disease.

Let us now confine our thinking to the management of rheumatoid arthritis. I am sure you would be delighted, and so would I, if I could tell you of a new drug which, if administered over a few days or weeks, would cure rheumatoid arthritis. Unfortunately, no such drug exists, and we must therefore be content to review those drugs and those measures which have really proved their usefulness in the management of this disease over fairly long periods of time.

Rheumatoid arthritis is nearly always a lifelong disease. Its management must likewise be life long and the doctors who carry out this management must follow cases for months and years before they can express an authoratative opinion as to the ultimate value of any given treatment.

The effect of rheumatoid arthritis on the musculoskeletal system can be likened to that of a smoldering fire on a modern building. If the fire is not put out, it will leave a mass of twisted girders and beams which are functionally useless, or, in the case of arthritis, a mass of contractures and deformities of muscles, bones and joints which leave the patient functionally useless. The obvious way in which to deal with this situation is to put out the fire, or at least to dampen it. While this is being done measures can be taken to prevent, and later to correct, the twisting and bending of the girders or bones, and of the joists or joints.

Our topic restricts us to those measures whose aim is to extinguish or dampen the fire. This by no means indicates that the prevention and correction of deformities is less important. In fact it is all too often all that can be done. In passing I cannot help remarking that nearly all the deformities which occur in arthritis are flexion deformities so that, in general, the mechanical care by ortho-

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*Read before the Medical Society of Delaware, Rehoboth, September 10, 1952.
**Clinical Professor of Medicine, Temple University.

pedic and physiotherapeutic methods is directed to strengthening extensor muscles and to supporting painful, inflamed joints in a position of maximum extension.

Now we are ready to discuss the drugs which posses an antirheumatic action. Recently I compiled a list of about 30 such drugs which exert some favorable effect on rheumatism. Most of these are of recent origin, and all of them are disqualified for mention today either because their action is weak and unpredictable or because of serious and harmful side effects.

Salicylates

Aspirin. You will, I hope forgive me if I first mention aspirin. This drug has been nicknamed "poor man's cortisone"—a name which modern pharmacology has fully justified by showing that it possesses at least half a dozen or more pharmacological effects which are identical with those of cortisone! In large doses it may even produce the "moon face" of Cushing's syndrome now so familiar as a side effect of ACTH and cortisone administration. We must not underestimate aspirin just because it is familiar, cheap and easily available. Aspirin, or other salicylates, possess excellent pain relieving properties and should be used in all cases of rheumatoid arthritis on a regularly prescribed dosage schedule. Many arthritics have never taken this useful and harmless anodyne, and it is our duty to see that they do. Most rheumatoids tolerate 60 grains a day. It is often a good plan for them to have 3 tablets at their bedside and to take them on waking 15 minutes or so before getting up. This will often aid the problem of early morning stiffness. If aspirin causes stomach upset, enteric coated tablets will bypass this difficulty. During the day aspirin should be taken about every 4 hours in doses of 5 to 10 grains as indicated by the symptoms. The effect of aspirin is of course symptomatic only, but, since the patient comes to us for relief of his symptoms, let us not overlook this simple aid.

Butazolidin (brand of Phenylbutazone) is a new antirheumatic agent which has a powerful symptomatic and suppressive action but which does not alter the course of the disease. Its analgesic action is approximately 8 times greater than that of salicylates. There may also be some reduction of swelling also a lowering of serum uric acid, but, with these additional anti-rheumatic actions we have to pay the price of toxic side-effects. Butazolidin acts on the symptoms of rheumatoid arthritis, spondylitis psoriatic arthritis, shoulder bursitis, gout, and degeneative joint disease, which shows us that its effect is not specifically on the disease but on the symptoms which are part of the body's reaction to disease.

Not all cases are favorably affected by this drug. Probably about 75% of cases obtain some degree of analgesia, and in about 1/3 of the cases of rheumatoid arthritis the response is sufficiently superior to that of salicylates to justify its use. Very little is known of its long term action although it has been administered to a few patients for as long as a year. The average dose is 100 mg. 2 or 3 times a day, but relief disappears promptly when the drug is withdrawn. In the case of acute gout, good relief occurs in 48 hours in about 3/4 of cases and is equal to the effect of combined colchicine and salicylates. There is a prompt fall in serum uric acid level, but apparently this is not due to rapid urinary excretion of uric acid and it may be due to an inhibition of uric acid formation. The role of Butazolidin in the long term management of gout has not yet been sufficiently studied.

Undesirable side effects such as anorexia, nausea, bloating, peptic ulcer-like pains, gastric hemorrhage, morbiliform skin rashes, anemia and leucopenia occur in about a quarter of cases treated with Butazolidin. These side effects should warn us to observe our cases carefully and to use butazolidin only when the risk is justified. Leucopenia and bone marrow suppression should be carefully watched for by serial blood counts.

It is as yet too early to make an authoritative statement as to the place of Butazolidin in the management of rheumatoid arthritis. Its use would seem to be justified on a trial basis. The seriousness of toxic effects must be further evaluated and must be balanced against the gain to be expected in symptomatic relief.

Cortisone and ACTH

I am sure that you are all familiar with the dramatic reversal of all the signs and symptoms of rheumatoid activity which can be promptly and routinely produced by ACTH and cortisone in cases of arthritis. I shall therefore say nothing further about this well established clinical fact. Instead let us try to analyze what really happens when these potent agents are applied to the management of a life-long disease and to discern what, if any, is the place of these new agents in the management of rheumatoid arthritis.

First, we must clear up some misconceptions:

1. ACTH and cortisone do not cure arthritis. They act by suppressing the body's reaction to the disease. This reaction, although causing most of the patient's symptoms constitutes the body's defenses against arthritis. If these are inhibited, the disease may well, and *often does,* continue to progress as shown by the involvement of new joints, increased stiffness and muscle atrophy.

2. In order to attain dramatic relief it is necessary to use ACTH and cortisone in doses which cause an artificial Cushing's Syndrome. Cushing's disease is a fatal condition, death usually being caused by infection, cardiovascular-renal complications or neoplasm within a few years. Although ACTH and cortisone have now been available for experimental therapy for about 3 years, there is very little factual information reported on its long term use. Actually no final statement can be made at present as to whether it can be applied on a long term basis, and the truth must await patient, year by year observation.

3. The toxic effects of ACTH and Cortisone are many—I will mention only the more important ones such as salt and water retention, spread of infection—(especially pulmonary tuberculosis) psychoses, intravascular clotting, G. I. hemorrhage and the cortisone withdrawal syndrome.

These distressing and occasionally fatal complications are more apt to occur in older people. It may be possible in the future to select those patients in advance who can tolerate prolonged cortisone therapy, but at present we do not know how to do so except to exclude the aged, those with hypertensive cardiovascular disease, menopausal patients, patients with peptic ulcer or pulmonary tuberculosis, the mentally unstable and, if possible, children. About 50% of patients cannot take ACTH and cortisone in full dosage. There is probably a small group who can tolerate full dosage, but again we do not yet know how long they can do so nor how to select them in advance.

The above statements apply mainly to those patients who are treated with large, Cushing's syndrome producing doses of cortisone and ACTH. However, the most miraculous results which followed the original schedule of 300-200 and then 100 mg. a day of cortisone may lead both the patient and the doctor into the hopeless quest of trying to maintain the complete remission. In many cases, the toxic side effects make this impossible on a long range basis, so that a dilema is created in which the patient is unwilling to return to his previous adjustment to his disease and the doctor, if he is not so highly specialized that he can't see the patient for his joints, is unwilling to risk the perpetuation of Cushing's syndrome.

I think the above situation is pretty well realized by most careful observers. As a result, the aim in using ACTH and Cortisone is now much more limited and the dosage is much lower. I will attempt to summarize the indications for cortisone and ACTH in the management of arthritis.

Rules for the Use of Cortisone and ACTH in Arthritis

1. In general, they should be used only when all other measures such as gold therapy, transfusions, rest, exercise and physical therapy have failed and the patient is rapidly getting worse.

2. *Dosage.* Instead of the old scale of 300 to 100 mg. cortisone per day and of 40 to 60 mg. of ACTH per day, one should seek the minimal dose which will give a *reasonable* degree of relief. It is wise to start with small doses and to build up to a level of not more than 50 or 65 mg. of cortisone daily or 15 or 20 mg. of ACTH daily. This will prevent the patient from forever trying to recapture his euphoric and pain free state provided by dangerously high dosage.

3. They may be used in short term courses for a few days or weeks as an aid to a vigorous program of rehabilitation by physical therapy or orthopedic procedures. In such

instances, it must be understood that they will be discontinued and that the patient will then suffer a relapse.

4. In depleted cases they may be used in very small doses such as 10 to 25 mg. of cortisone daily in order to improve appetite and nutrition, and are occasionally justified at the beginning of a course of gold therapy to hold the patient for the 8 to 12 weeks before the gold effect is established.

5. During administration, restrict the salt intake, watch for infections and treat them promptly with antibiotics. Do not stop cortisone abruptly—taper the effect with diminishing doses of ACTH. Be sure the patient will not have to stop treatment because of lack of funds.

HYDROCORTISONE

Compound F, or hypocortisone is probably the form, rather than cortisone, in which this type of steroid exists in the body. It is too early as yet to say whether it has any advantage over cortisone when used systemically. But when injected locally into joints, hydrocortisone has a very definite anti-inflammatory action, which is effective in almost any kind of infectious joint disease and is especially effective in degenerative joint disease. It has the great advantage of avoiding the undesirable systemic effects of cortisone and is useful in controlling pain and swelling in the larger and more accessible joints. Injections of 25 mg. to 37.5 mg. into a joint affords relief from pain and swelling for periods of several days to several weeks in about 85% of cases and may thus be a very valuable aid in an all round antirheumatic program.

ANTIBIOTICS

I mention these more because of their implication as to the possible etiology of rheumatoid arthritis than because they have an important place in therapy. At Temple University Hospital we have observed 3 or 4 cases of large joint, asymetric arthritis (which would ordinarily be classed as rheumatoid) in which the disease appears to have been completely reversed by terramycin. But we have not found antibiotics of use as a routine treatment. Occasionally cases are made worse by it. The idea of antibiotic therapy has been sponsored by Dr. T. M. Brown of Washington who points out that gold salts and antibiotics are active agents against pleuropneumonia like organisms. We not infrequently try terramycin in early cases where an infectious element, such as recurrent sore throats, or an onset following urethritis, is present. Although this is at present of little more than theoretical interest, it is an attempt towards finding the much needed agent which will really end the disease.

GOLD SALTS

Gold salts (not colloidal gold) have been in use for rheumatoid arthritis for 23 years, and are still, in my opinion, the most valuable single agent in the management of this disease. If properly used Gold Therapy is safe and can be expected to produce and maintain remissions over a period of months or years in about 20% of cases. In general, males, old people, early cases and asymmetrical large joint arthritis give the best response. However it is worth a trial in all but the far advanced ankylosed cases and should be our first choice in "specific" therapy rather than ACTH and cortisone. It is not effective in rheumatoid spondylitis. Naturally it must be accompanied by an all-round program of rest, exercise, physical therapy prevention and correction of deformities, an explanation to the patient of the life long nature of his disease also symptomatic and supportive treatment.

I stated that gold was "safe" treatment. This is only true if the early manifestations of gold intoxication are known and looked for with meticulous, unfailing care, and promptly treated if they arise. Gold treatment cannot be delegated to the office nurse. If not scupulously supervised it can be exceedingly dangerous. Gold is contraindicated in the presence of liver disease, kidney disease and in the presence of low leucocyte and platelet counts.

I will briefly outline the plan of gold therapy which I have used over a period of about 15 years. The patient is given, on successive days, 1, 3, 6, and 15 mg. of sodium aurothiosulfate (Merck) in 1 c.c. of sterile water intramuscularly. After this test dose (which totals 25 mg.) the patient is examined for signs of intoxication and a white blood count and differential count and a urinalysis is performed. If all these are normal it is concluded that the patient is not allergic to gold. He is then given 25 mg. of sodium aurothiosulfate intramuscularly twice weekly for 6 weeks. Once a week the W.B.C. and differential count and urinalysis is repeated, and *before each injection of gold the patient is asked regarding itching, skin rashes, sore gums, diarrhea and polyuria.* He has by this time received a total of 175 mg. of gold salts, and, if none of the evidences of intoxication are present, he now receives 25 mg. gold salts once per week for an indefinite period of time. If the patient is one of the 20% who respond to gold therapy, he will, when he has received a total of 500 to 750 mg. experience a lessening of fatigue, of pain, weakness, swelling and stiffness, which may be so striking that all clinical evidence for rheumatoid activity disappears and the patient is as though he had never had arthritis. It is well to continue the dosage at 25 mg. per week until a total of 1000 mg. have been administered. If the remission is still maintained (as it generally is) the dosage may now be cautiously tapered by giving 25 mg. every second week, then every third week and eventually once a month. This will permit the patient to be constantly observed. In case of a relapse, which not uncommonly occurs following an infection, an emotional upset or overwork, dosage on the schedule of 25 mg. twice weekly should *immediately* be resumed and tapered as before when the response is again attained.

While receiving gold therapy, patients should take at least 100 mg. of ascorbic acid daily together with all-round vitamin B complex. He should avoid stress, overwork, infection and chilling for the rest of his life.

Patients who do not respond as above may receive variable degrees of benefit from gold therapy—sufficient to hold the disease in check and to permit them to lead useful lives, but insufficient to restore them to health. About 25% of patients seem to obtain no benefit whatever from gold therapy.

In case of any indication of gold intoxication the gold salts are prohibited for at least one month. If the signs of intoxication include neutropenia, lowering of the platelet count, or diarrhea, the patient should immediately be hospitalized and treated with BAL, ACTH or Cortisone all of which have a protective action against gold intoxication. Persistent skin rashes may be treated with local analgesics, antihistaminics and BAL ointment.

On the above program, I have had less than half a dozen troublesome skin rashes and no serious complications or fatalities in 15 years. I therefore consider gold treatment safe and valuable and, at present, the most effective single agent in the management of rheumatoid arthritis. But I would like to emphasize again that it must not replace a program of rest, physical therapy and general symptomatic and supportive measures.

3401 N. Broad Street.

Discussion

Dr. Charles M. Moyer (Laurel): I am certain all of us have gained some new insight into the use of the newer drugs in the treatment of arthritis. One of the greatest problems that we, as general practitioners, have, is offering some definitive therapy to the many patients we see with crippling rheumatic disease. We have all gone through the waves of enthusiasm that accompany any new drug offered in treatment. We should be cautious in giving our patients false hopes for rapid cure. The premature release, by the press, of the promise that cortisone and ACTH were a cure-all is a good example of this. While these wonder drugs have been of great value in advancing the treatment of arthritis, they are far from the absolute answer. The medical and drug professions must assume some of the responsibility for causing cortisone paupers and the sequelae of self-medication. I would like to ask Dr. Lansbury for his opinion regarding the pschyosomatic factors, in the etiology and therapy of the arthritis.

Dr. Lansbury: I will answer the one question of Dr. Moyer.

Rheumatoid arthritis is a disease of unknown origin, or etiology. We know it is connected with the adaptation mechanism which is under the control of the hypothalamic areas of the brain and probably the pituitary-adrenal ascis, yet there is no proof as yet that there is any fundamental lesion in the pituitary or adrenal gland in rheumatoid arthritis.

We know that people with rheumatoid arthritis tend to have a certain personality pattern. Whether or not that has any relation to the disease has not been proved. They tend to be people who are proud, self-sufficient, and who on the whole are very brave and long-suffering. We know that in the majority of cases a stress situation, frequently of emotional origin, precipitates the disease, and I wish I could tell you that the removal of stress would cure the disease. However, the removal of stress may be a great factor in helping the patient. To give an example: I had a patient with arthritis who was one of the most tense people I have ever known. I finally persuaded her to go to Florida for the winter, sensing that there was chronic tension at home that she wouldn't tell me about. She went to Florida and sat in the sun, had no doctors or medicine and returned in the spring. When she came back she had no sign of arthritis anywhere in the body and was apparently cured. But it wasn't the climate. It was the change of "emotional climate" that did it. In other words, she got away from the constant stress she was under at home, which happened to be of her own making. I predicted that when she got back into the home situation she would have a relapse within six weeks; which she did. Here is an example of the relief of stress which caused a remission in the disease. On the other hand, when the stress is due to a deepseated character neurosis, I don't think much can be done psychiatrically to help the patient's arthritis. I don't mean this in criticism of the analysis, but I think when the stress is due to deepseated personality defects you can't do much to remove these causes. Nevertheless, I think the psychosomatic aspects are important in therapy as well as pathogenesis.

THE DIAGNOSIS AND TREATMENT OF ACUTE PANCREATITIS*

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A perusal of hospital statistics indicates that the diagnosis of acute pancreatitis is now being made much more frequently than in the past. That trend is particularly noticeable since 1945. The inquiring physician may well ask himself whether or not the incidence of acute pancreatitis is on the increase. The answer to the question probably will be in the negative. Certainly, the diagnosis of acute pancreatitis is being made more often than before. The reason for the apparent increase in acute pancreatitis is the availability and use of the serum amylase test.

Most hospital laboratories rarely performed serum amylase tests prior to 1940. The use of the test has increased greatly in the past seven years.

Reference to the older literature indicates that severe hemorrhagic, suppurative, necrotic types of pancreatitis were the only ones diagnosed. The more benign type of acute pancreatitis, namely acute edema of the pancreas, is a more recent variant, a type emphasized by Elman and his co-workers at a time when they directed attention to and initiated the more general use of the serum amylase test.

If one agrees that the increased availability of the serum amylase test is important in the diagnosis of acute pancreatitis, it is incumbent upon the physician to be alerted to the technique, normal and abnormal values of the serum amylase determination.

The serum amylase test is a relatively simple procedure, well within the capabilities of the average office or hospital laboratory. The ease of performance of the test recommends it as a routine procedure. It is important to realize, however, that there are many modifications of the test in geneal use, and the physician should familiarize himself with the particular variabilities of the test available to him. We use a modification of the Somygi test, in which serum from the patient is added to a dilute starch subtrate, incubated for a known period of time under standard conditions of temperature and pH control. Under such conditions, there is a breakdown of starch to glucose, which is measured in much the same manner that a blood sugar determination is performed.

In our laboratory, using a modification of the Somygi test for serum amylase, a normal value up to 125 mg. of glucose is accepted. Values within the range 0 to 125 mg. have the same significance. In other words, a value of 10 mg. is no more diagnostic than a value of 100 mg.

Abnormal serum amylase values may be obtained in pancreatic and in non-pancreatic disease. In acute pancreatitis, the serum amylase may reach a value of approximately 1000 mg.

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Insofar as the serum amylase test may reflect disorders apart from those directly involving the pancreas, the physician must keep in mind the rationale for an increase in serum amylase. In pancreatic disease, an elevated serum amylase is due to an obstruction, partial or complete, of the main pancreatic duct. That obstruction may be due to an abnormality located in one of three sites: intralumenal, intramural or extralumenal.

Of the many factors responsible for intralumenal pancreatic duct obstuction, three are important, namely (a) stone of either pancreatic or biliary origin, (b) metaplasia of the ductal epithelium, or (c) inspissation of intraductual contents.

The most important intramural pathology has to do with benign or malignant tumors of the pancreatic duct, or the intrapancreatic portion of the common bile duct.

Of the extralumenal factors, two are important: namely, carcinoma of the parenchymal tissue of the pancreas, and inflammation of the pancreas. The pancreatic inflammation may be primary or secondary to an inflammatory reaction elsewhere.

Because of the extreme importance attached to the serum amylase test, the physician must be alerted to a number of non-pancreatic factors causing elevations of serum amylase. Categorically they may be listed as follows:

(1) Variation in technique. Reference has been made previously to the fact that the physician must know which method is being used. Although the technique of the test is relatively simple, a new technician or one not familiar with the details and niceties of the test may report erroneous results.

(2) Drugs, especially codeine and morphine. It is well known that the hypodermic administration of certain opiate derivatives such as codeine and morphine may produce a spasm of the sphincter of Oddi. In our laboratory, extensive tests have been done on normal individuals, using codeine and morphine, in an attempt to determine the frequency with which spasm of the sphincter of Oddi may give rise to pancreatic block, simulating an acute pancreatitis, at least insofar as that diagnosis is reflected in an elevated serum amylase. A very small percentage of patients will show an elevated serum amylase or lipase following the administration of codeine and morphine, in the absence of pancreatic disease. The values of serum amylase may rise to the magnitude of 350 to 400 mg. The factor of opiates is important because many individuals who have upper abdominal pain are given opiates in an attempt to relieve the pain prior to the establishment of a diagnosis. It is not uncommon for a physician to give a patient with severe pain an opiate hypodermically, call for the ambulance and send him to the hospital.

(3) Renal disease with elevated blood urea nitrogen. It is well known that one of the mechanisms responsible for disposing of the normal amylase in the blood stream has to do with renal function. In an instance in which renal impairment is marked, there may be an elevation of the serum amylase of a magnitude of 250 to 300 mg. without any evidence of pancreatic disease. In such instances, the blood urea nitrogen usually attains a value of over 100 mg. per cent.

(4) Mumps. It is well known that inflammatory reactions of the parotid gland will cause an elevation in the serum amylase. Interestingly enough, the serum lipase is normal in such cases.

(5) Virus hepatitis. It is now recognized that the virus which attacks the liver in virus hepatitis is generally distributed throughout the body. It is not unexpected that a parenchymal involvement of the pancreas of a type comparable to involvement of the liver might cause a moderate elevation in the serum amylase comparable to an elevation of serum bilirubin in a case of virus hepatitis.

(6) Operative trauma to the head of the pancreas. In instances of subtotal gastric resection or other operative procedures in which the surgeon finds it necessary to traumatize the head of the pancreas, there occurs a reaction comparable in many respects to that seen in acute pancreatitis. The degree of elevation of the serum amylase in such an instance will depend upon the degree of operative trauma.

(7) Peritonitis. General peritonitis of non-pancreatic origin may cause an inflam-

matory reaction of all of the peritoneal coverings and adjacent organs. If the peritonitis is of sufficiently severe degree, there may ensue a secondary inflammatory reaction in the pancreas. Localized peritonitis such as occurs in perforation of a peptic ulcer into the lesser peritoneal cavity, may give rise to an inflammatory reaction of the pancreas secondary to the perforation.

(8) Intestinal obstruction. In instances of high intestinal obstruction, in which there is considerable dilatation of the loops of small bowel, there will often ensue a moderate rise in the value of the serum amylase. The cause of the elevation is not known. It seems unlikely that an increased intralumenal pressure of the small gut would be of sufficient magnitude to cause enough back pressure in the main pancreatic duct to block pancreatic secretion. One might imagine that if such a factor were important, the back pressure likewise would adversely affect the common bile duct, thereby giving rise to an elevated serum bilirubin, a contingency which we have not seen.

Thus far, we have referred solely to the use of the serum amylase test. In practice we run the serum lipase test with each blood specimen on which we run a serum amylase. In that fashion, one may check the technique of one test against that of the other. From a practical point of view, the serum amylase test is more important in acute pancreatitis because of the fact that the serum amylase may be reported, using the technique previously mentioned, within one hour. A serum lipase test, using the method of Cherry and Crandall, requires 24 hours for completion. In our experience the serum amylase test is a much more delicate indicator of variations in inflammatory reaction in the pancreas. The serum lipase, while roughly parallel to serum amylase, is somewhat less labile and for that reason is less useful in the acute case. We direct attention, however, to the fact that in the more chronic abnormalities of the pancreas, such as carcinoma of the pancreas or chronic pancreatitis, serum lipase is a much more accurate indicator of pancreatic duct block. The serum lipase test likewise is of importance in the follow-up observation of cases of acute pancreatitis. Therefore, from a practical point of view, it is well to set up both tests on the same serum.

Acute pancreatitis occurs in two forms; (1) acute edema of the pancreas and (2) acute, necrotic, suppurative hemorrhagic pancreatitis.

Acute edema of the pancreas is a relatively benign disease, lasting several hours to several days. It is usually the less toxic of the two types and much less lethal. Initially, it is impossible to make the differentiation clinically except for the fact that in acute edema of the pancreas, the clinical picture may be less severe. Whether acute edema of the pancreas is a precursor of the more severe form of pancreatitis is not known. We have the impression that we are seeing less of the acute, necrotic, suppurative, hemorrhagic form of pancreatitis, and it may well be that the treatment for acute pancreatitis, carried out vigorously in the early stages, may be a deterrent to the development of the full-blown picture of the more severe form. The acute, suppurative, necrotic, hemorrhagic type of pancreatitis was the only type recognized prior to the advent of the development of the serum amylase test, and in the older hospital statistics it represented the sole type of fatal acute pancreatitis.

Two etiologic factors are of some importance in the diagnosis of pancreatitis of either type, namely alcoholism and biliary tract disease. Therefore, in a patient with acute upper abdominal distress, the history of alcoholism, or of a previous cholecystogram, indicating the presence of stones in the gallbladder, may be of importance in suggesting that the current attack is on the basis of acute pancreatitis.

In spite of the fact that one may suspect an acute pancreatitis on the basis of the presence of pre-existing alcoholism or biliary tract disease, it is often difficult to make the differential diagnosis between biliary colic and acute pancreatitis on clinical grounds alone. Bockus and Raffensperger noted certain clinical factors in cases of probable biliary colic, which, in themselves, apart from the serum amylase test, may suggest a diagnosis of acute pancreatitis: (1) Epigastric pain of greater severity than one expects in biliary colic; (2) radiation of the pain to the left epigastrium, and occasionally to the left scapular area; (3) increased muscle guarding in the epigastrium, bordering on true muscle rigidity; (4) a greater degree of constitutional reaction than in biliary colic, namely higher fever, an increased pulse rate, and marked leukocytosis; (5) more shock than is usually encountered in biliary colic; (6) failure of relief of pain with hypodermic injection of opiates.

The most important differential diagnoses in a case of suspected acute pancreatitis have to do with (a) biliary colic, (b) acute coronary disease, and (c) perforated peptic ulcer.

In a patient entering the hospital with acute upper abdominal distress, in which acute pancreatitis, biliary colic, coronary artery disease, and perforated peptic ulcer must be differentiated, we feel that the following tests are most likely to be of help: (1) Scout film of the abdomen, preferably in a lateral exposure, which may indicate the presence of free air in the peritoneal cavity. The same film may disclose the presence of some calcification in the region of the pancreas, a diagnostic point of considerable significance in recurrent pancreatitis; (2) white blood count and differential; (3) serum amylase and lipase; (4) electrocardiogram.

It is our policy to treat acute pancreatitis in a conservative manner. We are aware of the pitfalls in failing to operate on perforated peptic ulcer, and the serious mistake of overlooking many other types of intra-abdominal pathology amenable to surgical attack. Our results with the conservative management of pancreatitis have been so favorable that we believe a surgical approach is neither necessary nor desirable.

In the immediate care of the patient with acute pancreatitis, the following program is recommended:

(1) Nothing by mouth.

(2) Gastric intubation with a soft tube with continuous suction to remove the acid gastric contents. It is well known that the acid gasric juice, on reaching the duodenum, acts as a stimulus to the flow of pancreatic juice. In order to be more certain that acid gastric contents are neutralized, we give an aluminum hydroxide gel in a liquid form, in the amount of one or two drams hourly.

(3) Atropine sulfate hypodermically, in the amount of grains 1/75 to 1/100 every four hours to the point of tolerance. We use the atropine sulfate to inhibit vagus impulses to the stomach and pancreas. The use of banthine and prantal may accomplish the same purpose, and occasionally we have used banthine successfully to supplant atropine in instances of this type.

(4) The daily administration of 1000 cc. of five per cent glucose in saline, and 1000 cc. of five per cent amigen. The intravenous glucose must be used cautiously because of the danger of precipitating a hypoglycemic reaction with attendant stimulation of the pancreas. Small doses of insulin may be required to cover the intravenous glucose.

(5) Demerol 50 to 100 mg. every four hours hypodermically. The use of phenobarbital parenterally also helps ease the pain, once the acute attack has begun to subside. A paravertebral block on the left from the eighth to tenth thoracic nerves has been recommended in acute pancreatitis. We have had no occasion to use that procedure except in cases of recurrent pancreatitis.

(6) Sufficient blood and plasma to combat shock. Shock may be an extremely prominent feature of acute pancreatitis, and when present must be treated vigorously.

Under the heading of delayed treatment, or more properly, treatment subsequent to that of the first several days after the onset of acute pancreatitis, one may categorically list the following objectives:

(1) There is always the problem of when to discontinue the intubation and antacid therapy. Usually we continue both for two or three days, and then cautiously discontinue them. As a guide in that connection, we do a daily serum amylase determination. In our acute cases, the initial serum amylase will range between 500 to 1000 milligrams. In the well-treated case that subsides promptly under therapy, the serum amylase may drop to a relatively normal value in one or two days. In such an instance, the intubation and antacid therapy may be discontinued. However, in instances in which the serum amylase main-

tains a relatively high value, the intubation and antacid therapy should be continued. Once having discontinued that therapy, if a relapse occurs, strict therapy is again instituted.

(2) The problem of when and what to feed these patients is somewhat difficult. Using the serum amylase test to guide us, together with other observations of the clinical course, we cautiously administer milk and surgical liquids in the amount of four to six ounces hourly. After two or three days, if these are well tolerated, the diet is increased to a point where the patient is taking sufficient calories, keeping the fat content of the diet to a minimum.

(3) An attempt is made to keep the urinary output at approximately a liter daily.

(4) The blood sugar is carefully watched and insulin used as indicated.

(5) The blood calcium is carefully checked in the more severe cases, particularly after the fourth or fifth day. It is well known that in cases of the acute, necrotic, hemorrhagic type of pancreatitis, the calcium in the blood stream is mobilized to form calcium soaps in the upper abdomen. Such a process depletes the general circulation of the store of calcium, and in such cases, tetany may ensue. Calcium gluconate parenterally is indicated if the blood calcium reaches a low level or tetany is detected.

The physician's responsibility following the subsidence of the attack of acute pancreatitis has not ceased. An attempt should be made to determine the probable etiologic factors and eradicate them, or at least attempt to modify them, so as to prevent recurrent attacks of pancreatitis. For example, about two weeks after the acute attack has subsided, a study of the gallbladder may be done, using a cholecystogram. If stones are present, a cholecystectomy should be done as soon as convenient, a matter of some one or two months following the acute attack of pancreatitis. In some cases, there will be evidence of an associated common duct stone, and if so, a surgical attack on that process may be required prior to the expiration of the one to two month period. Oftentimes repeated attacks of acute pancreatitis occur within short intervals during the hospitalization for acute pancreatitis, and if one suspects that biliary colic is a factor, it may be necessary to eradicate any stones which are present in order to prevent further attacks of acute pancreatitis. Patients who are addicted to the use of alcohol should be encouraged to abstain entirely from alcohol. My own experience with such patients is that they rarely follow that advice. A third factor to keep in mind in a patient who has had a rather severe attack of acute pancreatitis is the development of diabetes at a remote period. It has been estimated that from 20 to 35 per cent of such patients may develop clinical diabetes. In such instances, a careful appraisal of the patient at intervals of three to six months may be indicated.

Summary

We have attempted to outline the method of diagnosis of acute pancreatitis. In so doing, we have stressed the most important test available in that respect, namely, the serum amylase. The technique and limitations of the serum amylase test, together with its normal range and expected range of abnormal values, must be known to the physician who hopes to treat acute pancreatitis. An account of the differential diagnosis and method of management is outlined.

250 S. 18th Street.

Discussion

Dr. L. C. McGee (Wilmington): It is of interest that the physiologist who found so many things in his laboratory, Claude Bernard, produced with bile injected into the pancreatic duct pancreatitis in cats, in 1856.

Apparently, there was no reference in the literature to the suspicion that bile in the pancreatic duct might give rise to pancreatitis in the human patient, until later in the century.

Lancereaux in 1899 postulated such a series of events. Two years later Opie had a case that became historically significant to students of these diseases in that the stomach of this patient was so situated in the ampulla with the anatomical relationships of the two main ducts in the ampulla that there was a common channel—and he discussed that theory. And, as I understand, since 1901 there have been increasing reports, from the anatomical point of view, the clinical point of view and clinical experiments which emphasize the importance of physical or chemical irritation in the production of acute pancreatitis.

I would like to emphasize just one or two points which have been covered here, that have come out of our own experience. One is the difficulty of getting thoroughly reliable amylase results. It is not altogether the fault of the physician. You must recognize that in some hospitals these tests are done less frequently than in others, and it is not possible for the hospital technician to have the same point of view that the skilled chemists and clinicians would have, who have worked with the tests.

The test, however, is still a relatively crude one. That is why none of the levels under 125 can be considered of any significance, clinically. Remember, you are measuring an enzyme which acts in a chemical sense as an organic catalyst, and that but a small amount will do a whale of a job if the conditions are optimum. If you have the conditions optimal, you have a fine performance from the minimal amount. Contrary-wise, if your pH and other factors are slightly off, you may have an increased amount of amylase present in the serum without finding the amount of splitting of the starch that you expect after one hour, and, since those limitations come in, you can throw a curve, and, if it doesn't fit the clinical picture, it is often necessary to repeat and do serial tests and put your tongue in your cheek regarding the significance of this test, and make it part of the clinical diagnosis.

A second factor, particularly in those tests which indicate 200 and 300 Somygi units, one will look back and see there was morphine administered before the blood was taken a few hours before, and it may explain the high test which otherwise is confusing.

Frequently, in the early stage of acute abdominal episode the test will be done and three hours later we will be convinced from the appearance of the cardiogram and clinical findings of the patient that this is probably coronary thrombosis with infarction, and the test comes back and we find a confused incident at that point, while if you follow what Dr. Johnson said, there need not be a confusing part of the picture.

A few years ago, I had the opportunity of seeing 25 mumps cases at one time, sent from the CC Camp, and I learned more about mumps than I had had an opportunity to learn up to that time. I became interested in two or three patients that had acute upper abdominal episodes. I wonder if Dr. Johnson knows of cases where both the lipase and the amylase was done, and because of the elevation of the lipase one was justified in thinking the acute pancreatitis was due to the mumps. Originally, with films, I took them in a standing position and looked on the diaphragm for escaped air where a perforated viscus was to be considered. More recently, because of the increasing popularity of the lateral position I have been using that, the right side and the left being upright. I wonder if Dr. Johnson would have any comment to make on the preferred position, left or right lateral vs. the erect film in this type of differential diagnosis that we are considering today.

You will note that the emphasis in the last half century from the studies of pancreatitis has been on the chemical irritation of bile standpoint; little has been said of inflammation. It has been more from the standpoint of chemical irritation from the regurgitation of bile that comes after surgery. That type of emphasis may be correct. But I wonder if it has led us away from the infection part of pancreatitis. When we think of inflammation we usually think of infection being a part of the picture. Maybe it doesn't occur here. I know, certainly, there is no good evidence of bile infection. But I wonder if the element of infection may have been a factor indirectly. I am not speaking of the direct influence but indirectly on the pancreatic parenchyma, and further, would he comment on the role that alcohol plays? He mentioned "goathead"—he might tell us what that is—ethyl alcohol, or what. Of course we know the response of the gastric mucusa to alcohol pouring out more hydrochloric acid and as a result, if there is an obstructive lesion, you may get acute pancreatitis. I wondered if there might be some marked activity influencing the vagus which would aid and abet the irritation following the alcoholic indulgence.

Dr. I. L. Chipman, Jr., (Wilmington): It was discovered at the turn of this century at a postmortem examination that a stone impacted at the ampulla later caused bile to enter the duct of Wirsung, by applying pressure on the gall bladder. By this mechanism other types of obstruction of the ampulla have been held responsible for the initiation of acute pancreatitis; and, consequently, arose the so-called "common channel theory."

Enough work and cases have been demonstrated to show that this is true in many cases of pancreatic disease. However, there are many cases that never develop pancreatitis who have a common channel as demonstrated by cholangiography at the time of surgery for biliary tract disease or some other intraperitoneal disorder; consequently, it follows that two other conditions must exist if they rule in conjunction with the common channel, namely: (1) obstruction to the out-flow into the duodenum; and (2) activation of the pancreatic enzymes either in the biliary passages or within the pancreas. Because the common channel does exist in a number of cases which suffer from recurrent bouts of acute pancreatitis leading to chronic pancreatitis the operation of sphincterotomy is receiving some acclaim in certain clinics in more recent years. I would like to ask Dr. Johnson what his experience has been with this procedure and its results in pancreatic disease and, also, what his feeling is in the matter of treatment of the recurrent picture in spite of a well defined and followed medical regimen?

In consideration of the differential diagnostic features I would like to say that the detection of the so-called Gray-Turner sign, which is a patching of blue-gray areas distributed particularly over the abdomen and limbs, is a hint as to the disease in question when present. In a few cases one may also see petechial patches on the thighs, buttocks, and a discoloration below the ribs posteriorly. All of these are relatively rare but do occur and should be looked for.

In the more severe forms of acute pancreatitis I have always been impressed by the very large doses of narcotics which must be administered before bringing relief compared with the average ease of coronary artery disease and ruptured peptic ulcer.

Dr. Johnson's remarks on serum calcium alteration brings to mind the fact that the alteration in calcium metabolism is usually much more severe in the acute hemorrhagic pancreatitis in which there is more fat necrosis and, consequently, more mobilization of calcium in these areas. It has been my experience in a limited number of cases that a progressive lowering of serum calcium concentration denotes a guarded and grave prognosis and in this way can serve as an index of morbidity or recovery. However, as Dr. Johnson stated, unless calcium is given in large doses intravenously the serum concentration level returns to normal slowly, often lagging behind the clinical course of the disease.

Dr. Johnson's discussion of serum amylase and its significance brings to mind one other point which often proves to be practical in diagnosis; namely, that involving the urinary amylase. For occasionally the serum amylase concentration is elevated for a brief time only whereas the excretion of urinary amylase may be elevated for a longer period of time; and, consequently, this test may be of value from a diagnostic standpoint.

Dr. Johnson has mentioned of the common complications of pancreatitis; namely, the permanent impairment of carbohydrate metabolism due to the reduction of pancreatic parenchyma. Another complication is pancreatic cyst formation and I would like to ask Dr. Johnson in his experience what has been the relative frequency of this entity following pancreatitis. As has been intimated, many methods of treating the patient during the acute phase of acute pancreatitis including antispasmodic drugs and paravertebral blocks have been mentioned. In the literature one finds mention of the efficacy of intravenous procaine which has given prompt relief after a single or repeated injection of 10 cc. of the 1 per cent solution or 15 or 20 cc. of the ½ per cent solution in several patients. I personally have had no experience with same and would like the comments of Dr. Johnson regarding this method of therapy.

Perhaps the most recent new approach as far as laboratory help in the diagnosis of pancreatitis has to do with the reports, of relatively recent origin, in which it is stated that there has been markedly elevated antithrombin titer in acutely ill non icteric patients with acute pancreatitis of one form or another. In closing I would like to ask Dr. Johnson if he and their laboratory have had experience which may confirm the original report regarding plasma antithrombin elevation.

Dr. Johnson: The serum enzyme test requires careful control in order to have clinical value. Tests carried out by an inexperienced technician or an interne who has had no opportunity to perfect himself in this respect, are to be regarded as unreliable.

A serum amylase value of 800 to 1000 mg. is of great importance in the diagnosis of acute pancreatitis. Lower values of serum amylase may reflect the presence of non-pancreatic disease.

In instances of acute parotitis, a high serum amylase may be present. In an uncomplicated case of acute parotitis, the serum lipase should not be elevated. In instances of acute parotitis in which there is secondary involvement of the pancreas, we may expect an elevation in both the serum amylase and lipase.

A scout film of the abdomen in an instance of acute disease will give a very satisfactory result in the right lateral position, as suggested by Dr. McGee.

The ingestion of ethyl alcohol in the form of spirits often gives rise to acute pancreatitis. We do know of instances in which the ingestion of methyl alcohol may give rise to severe inflammation of the pancreas.

In instances in which an incision of the sphincter of Oddi is desirable, we prefer the transduodenal approach.

Ecchymosis in the peri-umbilical region or posteriorly is not an expected sign in early acute pancreatitis. The ecchymosis may develop later, but at that time usually is of no clinical value, except to confirm an earlier impression of acute pancreatitis.

We have had no experience in the use of intravenous procaine to ease the pain of acute pancreatitis.

PROLAPSE OF THE UTERUS

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The use of the term "prolapse of the uterus" is an expression of ancient colloquial origin, which does not properly define the nature of the pathologic process which involves both the caudal wall and the inclosed viscera.

Some authors, Tandler and Halban (1907)[1], Barret (1909)[2], and Montgomery (1913)[3], defined any visceral wanderings into, through, or outside the pelvic floor as hernias. Tandler and Halban specified that prolapse is a wandering downward of the structure in the abdomen.

All the mentioned authors considered the pelvic floor on the same basis as the abdominal wall; in other words as an enclosing muscular and fascial structure, supporting the super-imposed viscera, which should be intact, but which becomes impaired and permits the abdominal viscera to pass through it. Consequently, there is disunion of the normal attachment between the supporting structures and the structures to be supported.

Anatomic Considerations

Research by many authors has shown that the caudal muscles and the fascias become modified as the upright position is assumed in order to make a strong abdominal wall for the end of the abdomen.

When the upright position calls for a change in construction it utilizes the muscles that have pubic, iliac, and coccygeal insertion and origin. By means of a fusion in the medium raphe, this structure becomes a funnel-shaped, circular muscle that completely closes the caudal end of the abdominal wall, except for three openings for the passage of the three functioning ends: rectum, vagina, urethra. The support of these structures is facilitated by an interweaving of the muscles and fascias with those of the wall of the rectum and vagina and extend upward along this wall. These structures have so close an anatomical and embryological interrelation that an injury to one is invariably followed by injury to the others.

The closure of the pelvic outlet is a muscular mechanism which undergoes even in physiologic life a stress due to the sudden rise of intrapelvic and intraabdominal pressure: coughing, sneezing, defecation. This function is kept efficient by the levator ani and, more precisely, by the pubo rectalis and pubo coccygeus, morphologically, elements of the levator ani. Both arise from the pubic bone with their innermost border almost reaching the symphysis. The pubococcygeus passes backward and inward in a gentle curve and slightly upward to be inserted medially in the ano coccygeal raphe and to the top of the coccyx, forming with its fellow of the opposite node a V-shaped muscle.

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The posterior commissure is not tendinous, but muscular, lying in loose, fatty connective tissue. When in contraction, the pubo coccygeus, with its physiologic thickening, gives rise to a diminution of the pelvic floor aperture in its transversal diameter, while the pubo rectalis in contraction reduces the antero-posterior diameter, pushing the vagina firmly against the pubic arch. In this way it acts as a very effective sphincter to close the pelvic floor and the visceral canal. In other words, according to Barret (1945)[4], the whole caudal structure is formed by the levator ani which, by nature of its position, is a lifter of the rectum as well as a support and lifter of the vagina and has close interrelation of support with other pelvic structures within the pelvis, the bladder, the uterus, and the rectum which are both suspended and supported. They are suspended by the folds of the peritoneum ligaments and fascias. These structures which both supplement and complement each other are situated grossly one over the other upon the supporting perineum.

The vascular structure, connective tissue, and large deposit of fat aid in forming a solid structure. The relative positions of the uterus and vagina are of importance in order that the line of vertical pressure on the posterior uterine surface is deflected against the most resisting part of the pelvic floor—the perineum.

There are, nevertheless, two points which may be considered weak in the normal construction: the first is in front at the base of the bladder between the tendinous arches; the second, posteriorally in the space between the uterosacral ligament and the muscular structure. The uterus is kept in position by the intestinal pressure from above, exerted on its broad ligament on the medial surface from above by the previously described structures and by its ligaments and fascias with which it is connected to the sacrum, bladder and vagina.

Goof (1931)[5], clarified the concept concerning the pelvic fascia around the vagina. In his histologic studies he found a thin layer of areolar type between the anterior vaginal wall and the rectum.

Koster (1935)[6], denied any function of the cervical connective tissue in keeping this organ in place.

Considering now the position of the pelvic wall and its aperture in relation to the transmission of the intraabdominal pressure in its variation, we can realize that the disposition to lesion is still further diverted by the inclination of the pelvis which takes it out of direct or vertical intraabdominal pressure. In stressing this idea, Koster (1936)[6], Carbonini (1948)[8], and Nobile (1948)[9], referred themselves to a well developed and well constructed bony pelvic ring.

A saggital section of the body shows the outline of the abdominal cavity to be pear shaped, with the large end uppermost. The posterior wall consists of the psoas muscle and the fat pad inclined backward from below, at an angle of about fifty degrees, and forms a padded shelf which helps to support the organs of the upper abdomen. Any pressure from above, therefore, would be directed not downward in a vertical direction, but downward and forward, toward the anterior abdominal wall at an angle of about fifty degrees and reflected backward toward the sacral hollow. Thus the pelvic floor aperture, because of its anterior position, is out of reach of the direct visceral thrust. In erect position such a pressure wave can reach the apertures only by further diffusion. The plasticity of the visceral mass provides an added safety.

Etiology

It is generally agreed that pelvic hernias are brought about by the action of gravity of the intraabdominal and intrapelvic viscera upon an inadequate pelvic floor which underwent injuries. While obstetric traumas are commonly looked upon as paramount in the genesis of pelvic ptosis and hernias, occasionally these conditions are reported to occur in nulliparous women and even in newborn. There is a great difference of opinion as to whether the muscular, fascial, or ligamentous supports are chiefly involved in pelvic hernias.

Martin, in Berlin, emphasized the fascial and ligamentous apparatus as the chief factor in the normal topography of the female genitalia. Tandler and Halban (1910)[1], Montgomery (1913)[3], and Barret (1945)[4] were agreed on the importance of the muscular structure. They pointed out that the lesion occurs on the puborectalis vesical muscle near the pubic attachment in the vesical and vaginal region with an irreversible impairment of its function in reducing the anterior posterior perineal diameter and indirectly interfering with the function of the pubococcygeus in maintaining reduced transversal diameter.

Gasparri and Morra (1934)[11] described in their histologic studies the pathologic modification of the birth canal occurring during the delivery with special references to the muscular structure. They found in the contractil muscular fiber patches of hyalin degeneration.

Masson (1940)[12] points out the importance of lesion of the Mackenrodt ligaments and the uterosacral ligaments and the laceration of anterior or posterior vaginal wall. He believes that inadequate obstetrical care during labor plays an important role in the etiology of prolapse.

Turner and Browne (1942)[13] and O'Donnel (1941)[14] agree that muscular damage is essential in causing pelvic herniation preceded by rectro displacement of the uterus as an initiating factor.

The work of all these men covered all the necessary information and has been fundamental in the development of various successful methods of operative repair, but it has not disclosed the etiology of the pelvic hernia.

Other authors emphasized the importance of constitutional predisposition in the development of pelvic hernias, studying the problem on the same basis as other hernias. By this means of approach they gave us the etiology of the alteration. They clarified the concept of predisposition either of congenital origin or acquired by casual diseases occurring during the lifetime.

Reyner (1896)[15] reports cases of ptosis and herniation occurring in tuberculosis, anemia, and lukemia. Doleris (1898)[16] points out that loss of fat as a result of acute, chronic, or severe diseases was a valid predisposing factor. Pestalozza (1905)[17] reports cases of pelvic herniation in malaric nulliparous patients. Stiller (1907)[18] and Mathes (1912)[19] first recognized that women with all the characteristic signs of congenital weakness and looseness of the mesodermal tissues are more likely to pay for motherhood with prolapse of the uterus and defined them as asthenic ptotic type. These women present a flat thorax, ribs which join the vertebrae at acute angles, a lax abdominal wall which protrudes below the umbilicus, unable to resist the pressure of the entroptotic viscera. In addition to this fully developed type, there are many minor degrees of asthenic ptotic constitution which are concealed and perfectly normal in appearance and which can be recognized only by the discovery of enteroptosis, movable retroflexion of the uterus, and vericose veins of the lower extremities.

In addition to the asthenic ptotic type previously described, Von Graff (1933)[20] recognized that the intersexual woman as well as the acromegalic woman is less apt to fulfill the demand of reproduction without lasting damage. In referring to the acromegalic woman, Von Graff suggested constitutional endocrine disturbances as a predisposing factor. He reports 26 cases of gynecological hernias in nulliparous women between the ages of 17 and 69 with stigmas of asthenic constitution. Among parus women he found, regardless of parity, 147 cases of prolapse of the uterus and marked asthenic constitution.

Gynecologic hernias appeared in 22 women immediately after the puerperium, especially after 29 years of age. The greatest number of cases appeared between the ages of 40 and 50. According to Von Graff, the rectro displacement of the uterus by itself does not favor the development of prolapse or hernias, but it may be a significant symptom of the patient with constitutional inferiority. He concludes, therefore, that birth injuries act merely as an initiating factor in the production of prolapse.

Cases of complete herniation of the uterus associated with spina bifida in newborn are reported frequently in medical literature. In 1917 Palmer Findley[21] found in one newborn: hydrocephalus, spina bifida, and prolapse of the uterus. Noyes (1927)[22] reported one personal case, and upon reviewing the literature up to that date he found 24 other cases. Most of the babies died within one month. This author believed that spina bifida is of primary etiologic importance in the occurrence of prolapse. There is a partial or complete paralysis of the musculature of the pelvis and of the ligamentatous structure resulting in secondary atrophy.

Torpin (1942)[23] had a personal case of the two conditions in which the newborn died in the twentieth day.

Von Graff[20] suspected occult spina bifida and prolapse of the uterus in four cases of nulliparus adult women. In four cases the X-rays were distinctly positive, in one case suspicious, in one case negative.

Laws (1932)[24] studied three multiparus women with early occurrence of prolapse and found three positive cases of occult spina bifida.

Carbonini (1949)[8] found alteration of the bony pelvic ring associated with prolapse of the uterus. In 108 nulliparus and multiparus women with gynecological hernias of varying degrees he found, by means of roentgen examination, contracted or platipelloid pelvis with short anterior posterior diameter and transverse long diameter. He suggests vitaminic deficiency as an original factor.

INCIDENCE

In 1800 women (Von Graff Series)[20] uterin prolapse occurred in 147 (18.4 per cent). Twenty-six of them (3.2 per cent) were *nulliparus*. The age varied between 30 and 45.

PATHOGENESIS

When the pelvic floor is enlarged as a result of injury or looseness of the sphincter mechanism, the bladder, which rests above the sphincter anteriorly and which is subject to the wave of intrapelvic pressure, is pushed down into the aperture everting the anterior vaginal wall in front of it. In a similar manner dilation of the anterior rectal wall occurs because of increased pressure within as a result of the straining action of passing stools. The ultimate result is the extrusion of the vaginal wall overlaying the rectum through the aperture with the consequent production of a rectocele.

It is not important whether the protrusions occur anteriorly or posteriorly. Ultimately with the continuation of visceral thrust from above, the cervix and the uterus begin to slip through the pelvic floor. The uterus is pushed away from its anterior position, where it rests on the bladder, back toward the sacral hollow and the cervix assumes a corresponding anterior position.

It is obvious that as the uterus becomes retroverted, the cervix anteroverted, and the protrusion begins, it is to be expected that the cervix, being immediately over the aperture, frequently is the first organ to present itself at the vulva.

The attached ligaments and the connective tissues become greatly elongated. As the process continues, the descending organs are grasped at certain moments by the contraction of the remaining muscular structures. This continues until an equilibrium is established. This equilibrium depends especially upon the condition of the puborectalis.

In the development of herniation, the puborectalis muscle hypetrophies as an expression of the attempt on its part to compensate for the original injuries. Occasionally such response may be sufficient to close the aperture and prevent further prolapse.

SYMPTOMATOLOGY

The prolapse of the uterus, in itself, causes few symptoms. The patient may complain of a bearing-down sensation and sometimes of a dragging pain or an ache in the lower back while standing or walking.

Because of the intimate relationship of the cervix and the bladder, a cystocele is usually present in a minor or major degree and the associate relaxation of the urethral sphincter causes the patient the most definitive discomfort. The cystocele may alow residual urine to remain in the bladder after voiding, thus causing irritation (trigonitis, cystitis) which will cause burning irritation and pain. Relaxation of the sphincter muscles results in an inability to retain urine when a rapid intraabdominal pressure is caused by coughing, sneezing, or laughing.

Brettauer and Rubin (1923)[27] pointed out that this condition may lead, in time, to the involvement of the complete renal system. They believe that, theoretically, retention of urine and intramural stretching of the ureters in the bladder wall can produce compression and occlusion of the ureters. As a result, hydronephrosis or hydroureters will develop with an infective, superimposed process. The length of the complete obstruction is, of course, of fundamental importance in the etiology of this renal complication.

Wosika and Maler (1938)[28] reported a series of 57 patients with high degrees of cystocele plus hydronephrosis and hypertension. From their observation they conclude that hypertension may be indirectly caused by the pelvic protrusion by means of a mechanism which is easily understood. When a rectocele is present constipation is the almost common symptom. Sacculation of the feces occurs frequently and the movement of the bowels may require pressure from within the vagina. In complete laceration of the perineum and when the sphincter ani are torn, there is no longer the ability to control and return fecal contents. The patient complains of involuntary loss of stools so that she is constantly compelled to wear a pad. In marked degree prolapse, ulceration, and infection of the protruding part complete the symptomatologic pattern.

DIAGNOSIS

Pelvic herniation can be recognized easily, but determination of the degree may be difficult and is important in selecting the most satisfactory method of repair. The full extent of the lesion is not often determined until the cervix is pulled downward with a tenaculum.

The classification of the prolapse by Tandler and Halban[1] (1907) is clinically useful:

Grade I. Incipient prolapse with early cystocele. The bladder is partially bulging in the anterior vaginal wall.

Grade II. The uterus has slipped down and the cervix appears in the vulva. The fornix appears in the vulva. The fornix appears under the pubic arch.

Grade III. The whole uterus extrudes in a sac of the inverted vagina with the overlying distended bladder and eventually underlying entrocele.

Simpler classifications were reported by other authors using such terms as descensus for the incipient process, and procidentia for complete external protrusion of the uterus with cystocele and rectocele.

Vaginal examination will reveal the nature, leval, dimension, and organs involved in the herniation. Usually a soft reducible mass in the anterior vaginal wall is pathognomonic of cystocele. Masses of other etiology are readily differentiable. Inability to retain urine and urinary tract disturbances will require an intravenus uragram.

Consideration of tabes or other cord lesions in patients with urinary tract conditions must be considered. Failure to test the reflexes as a routine procedure in all cystocele and urethrocele may lead to serious consequences. In some cases in order to identify these hidden lesions and to ascertain the extent of those lesions, it is necessary to examine the patient while straining in a standing position. The prolapse of the uterus is thus easily recognized. Bimanual examination is essential in order to rule out complicating pathology such as the possible pressure of associated pelvic masses exerting downward pressure. Ulceration of long standing caused by friction upon the protruding uterus requires careful examination in order to establish its real nature: decubitus, epithelioma, etc.

CARCINOMA OF THE CERVIX IN PROLAPSED UTERUS

The combination of the two conditions is very rare. In 1882 Fritsch[30] said that the two conditions did not occur together. In 1893 Portow[31] collected 29 cases in past literature. Cullen (1923)[32] reported one personal case at Johns Hopkins Hospital. Haegler[33], in Vienna, diagnosed five cases among 11,045, emphasizing at the same time that the incidence of cancer was 7.2 per cent.

In Europe, at the same time, such eminent gynecologists as Alfieri in Milan, Delvaux in Paris, and Hartman in Berlin had not had one personal case. On the other hand, Emmert and Taussig in 1934 reported four cases of cancer of the cervix in prolapse of the uterus. Ashton (1948)[34], mentioning a personal case, found only one other case in the records of Woman's Hospital of Philadelphia between the years 1931 and 1948.

Considering the rare incidence of the two conditions, a theory was advanced that cornification of the epithelium raises resistance to cancer. Emmert and Taussig (1934)[35], however, stressed that a more accurate histological diagnosis will lead to the discovery of higher incidence. They claim that "because this condition occurs in elderly women, in atrophic tissue, and where lymphatics are stretched and occluded, the malignancy is not very active."

Pregnancies in Prolapse of the Uterus

Based upon the number of cases reported, it is apparent that prolapse of the uterus associated with pregnancy is unusual. Most of the recorded cases which have gone to term showed only an elongated hypertrophied and edematous cervix. In other words, there was a low degree of prolapse. Complete extrusion of the uterus is hardly compatible with a full term.

The *Index Medicus* listed 170 cases collected before 1901. Palmer Findley (1911)[36] reported ten cases. Kibel (1944)[37] reported one case among 15,696 deliveries and stated that in reviewing all the past literature up to that date found 203 cases.

S. L. Israel and Lennard Weber (1950)[38] report that in thirteen years five cases were found among the 17,361 deliveries at Philadelphia's Mount Sinai Hospital, an incidence of one in 3,472. Prolapse of the uterus is rightly considered a serious complication of either pregnancy or labor. Abortion in early or late pegnancy occurs rather frequently.

At term the patient shows an edematous hypertrophic cervix which will interfere with labor. Israel suggests that proper use of pessaries thoughout the pegnancy will reduce the degree of cervical edema and the indication for forceps and Duhirssens incision.

Treatment

The treatment of pelvic hernias has interested physicians of every age. Hippocrates, in the fourth century B. C., treated complete uterine prolapse by manual reduction and afterward seven days of rest in bed with feet elevated. He gave a very bright clinical description of the condition, but did not mention the result.

Soranus suggested an heroic treatment for prolapse: twenty-four hours of suspension to a ladder. He was the first person to suggest using pessaries.

Romain Gerardin, in 1823, proposed the obliteration of the vaginal oriface. In 1831 Marshal, of London, proposed a rectangular denudation of the anterior vaginal wall followed by side to side suture of the denuded area in such a manner that the prolapsed uterus would be supported by the narrowed vagina. Hernig, a hundred years later, followed the suggestion and performed such operations successfully. In 1888 Donald, of Manchester, devised the combination of the anterior and posterior colporaphy with amputation of the cervix. This treatment was modified by Fothergill and Fletcher Shaw and today constitutes the elective treatment of the majority of cases. Kimbrough (1947)[40].

Surgical repair is indicated in most cases of extensive herniation. Many, however, who do not have marked symptoms or who are contemplating more children prefer to delay surgical treatment, even at the risk of undergoing a more radical operation at a later time. In some cases of debilitated, elderly women there is a definite contraindication to surgical intervention of any type. In these instances the use of pessaries and tampoons is the therapy of choice.

No pessary is completely satisfactory. The commonest types are the Ball, the Menge, the Cherung, and the Gellhorn. The latter, under certain conditions, seems to be preferred. It can be removed and reinserted by the patient and permits sexual activity. The use of pessaries, however, leads to irritation, ulceration, and leucorrhea.

Doyle[41], in 1950, suggested that the use of the pessary is harmed by the presence of ulceration on the protruding part.

The surgical correction of uterine prolapse is generally accomplished by two means of approach: vaginal and abdominal. The type of intervention will be influenced by the following factors: age and physical status; presence of other pelvic conditions; marital status; desire for children; size of uterus; presence of enterocele; degree of prolapse; previous pelvic surgery.

The classification of Crossen[42] brings order to the confusing multiplicity of operations for the reduction and repair of pelvic hernias on an anatomical basis. The problem of future childbearing potentiality divides the two principal parts of the outline.

I. Reproduction Preserved
- A. Vaginal Operations
  - 1. Shortening of the broad ligaments and elevation and repair of uteropubic plane (broad ligament plastic) (Manchester-Doland-Fothergill method) Applicable to all degrees of prolapse. Can be performed under local anesthesia.
  - 2. Shortening of the normal ligament.
  - 3. Shortening of the uterosacral ligaments.
- B. Abdominal Operations
  - 1. Shortening of the round ligaments.
  - 2. Shortening of the uterosacral ligaments. (Young technique)
  - 3. Elevation and repair of uteropubic plane from above.

II. Reproduction Eliminated
- A. Vaginal Operations
  - 1. Uterus used for support (Schauta, Freund, Fritch, Wertheim, Watkins)
    - a. Subvesical interposition of corpus uteri.
    - b. Amputation of corpus with subvescical interposition of cervix.
    - c. Subpubic fixation of cervix uteri.
  - 2. Closure of vagina (colpocleisis—Le Fort operation)
    - a. Partial
    - b. Total
  - 3. Uterus removed
    - a. Vaginal hysterectomy
- B. Abdominal Operations
  - 1. Ventrofixation of uterus to abdominal wall (Harris technique)
    - a. Suturing of corpus to wall.
    - b. Implantation of corpus in the wall. (Kocher method)
  - 2. Subtotal hysterectomy with high fixation of cervical stump.
  - 3. Complete hysterectomy with high fixation of vaginal vault.

Repair of perineal injuries can be part of any procedure if necessary.

The choice of treatment, as said before, depends upon the proper evaluation of the patient's condition, the extent of the herniation, the organs involved. Any type of operation of routine type must be avoided because it will certainly be too radical in one case and insufficient in others.

The relative dangers of an abdominal or vaginal operation will be lessened to a large degree by the use of the proper anesthesia and by improved postoperative and preoperative care.

The Manchester operation has proved to be more effective in instances in which childbearing is to be preserved. It can be used, according to Kimbrough,[40] in older women if there is no special indication for hysterectomy.

The interposition operation devised simultaneously by Watkins and Wertheim can be utilized only when childbearing is not a problem. Because of the distorted relation of the uterus and the bladder childbirth is impossible, therefore it can be utilized only after menopause.

Vaginal hysterectomy is rarely utilized except in occasional cases of complete prolapse in elderly women. The presence of cystocele must be obliterated.

Partial closure of the vagina (Le Fort technique) is applicable in those patients in whom sexual life is not important. It can be easily performed under local anesthesia. Postoperative complications are rare. Diagnostic curettage must be performed in order to find malignancy. If malignancy is present deep x-ray and radium should be used before surgery.

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THE EARLY TOXEMIAS OF PREGNANCY*

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The toxemias of pregnancy are divided into two categories: (1) the early toxemias, or those appearing before the third trimester; and (2) the late toxemias, or those appearing in the third trimester. In the past there has been some difficulty in classifying these diseases but recently all the authors have agreed upon a standard classification. I will discuss the early toxemias of pregnancy which include simple vomiting of pregnancy, pernicious vomiting of pregnancy, and acute yellow atrophy of the liver. I will also discuss essential hypertension or hypertensive cardiovascular disease. This latter is not a toxemia of pregnancy, but I will point out a few of the important factors of essential hypertension and its relation to toxemia.

VOMITING OF PREGNANCY

When vomiting occurs during pregnancy one must think of it as occurring because of one of three reasons: Firstly, it must never be forgotten that the diseases which cause vomiting in the non-pregnant woman may also produce vomiting during pregnancy. Thus, the differential diagnosis of such diseases as appendicitis, peptic ulcer, gallstones, intestinal obstruction, and pyelonephritis must always be borne in mind lest we overlook a very dangerous acute surgical condition. Secondly, it is believed by some that there are toxic causes for some vomiting during pregnancy. It is presumed upon this basis that a toxin is liberated by the pregnancy and causes vomiting. However, no specific pathologic lesion, toxin, or hormone has ever been isolated to prove this point. The third great category which may account for vomiting of pregnancy is that due to psychoneurotic-physiologic reflex. It is this latter with which we are primarily concerned.

Simple vomiting of pregnancy occurs in about 50% of all pregnant women. The most logical concept of toxemic vomiting of pregnancy is that if simple vomiting is not treated and does not regress it will progress into pernicious vomiting. We must consider simple vomiting as the precurser to the more serious type. We must consider that this vomiting may be due to physiologic causes, as, for example, the presence of a retroverted uterus, or even the presence of an enlarged uterus. In the non-pregnant individual, the same reflexes are seen in cases of ovarian cysts. Again, it is believed that endocrine disorders may produce this vomiting, and studies have been made on pregnant serum and urine which show abberations in the quantity of gonadotropic hormones and adrenal hormones. The absence of Vitamin B6 has also been shown as a cause of vomiting. Too, there is data to substantiate the idea that vomiting may arise from an allergic basis—the pregnant woman being allergic to an unidentified hormone from the corpus luteum.

The most important factor, however, appears to be the psychoneurotic one. This does not imply that all cases of vomiting in pregnancy are suffering from psychoneurosis. It is interesting to speculate on the psychological factors. It has been shown that the Eskimos, native African tribes, and the southern Negro seldom have vomiting during pregnancy. Similarly the oriental, the American Indian, and the Mexican Indian seldom vomit during pregnancy, until assimilated into western society. Psychoanalysts, while studying patients who vomit during pregnancy find several important underlying factors in the thinking of these individuals. They discover that during childhood these patients had the impression that their mothers were orally impregnated by the swallowing of a seed. The vomiting which they exhibit later represents the rejection of a foreign body by the oral route. They substantiate this argument with the fact that vomiting in these patients usually stops when life is felt. This presumes that since life is felt, rejection by the oral route is no longer a possibility and thus vomiting stops. Analysts also find that these patients have disturbed sexual attitudes and ideas. Many of them have a dislike for sexual intercourse and others have suffered from hysterical dysmenorrhea. Excessive mother attachment is the third factor in the background of many of these patients. Subconsciously these women regard pregnancy as a shameful condition.

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Thus the patient presents herself with this complex situation. Her symptoms may vary from simple vomiting—occurring occasionally in the morning, and accompanied by nausea—to the more severe form with intolerance to all foods and liquids and vomiting being aroused at the mere mention of food, odors, the sight of food and even the change of position. Great loss of weight, salivation, thirst, hiccups, constipation or diarrhea may result. If the urine is examined it is found to be scanty and concentrated. It may have a trace of albumin, a few hyalin casts, a few red blood cells, bile, and may contain acetone and diacetic acid. If the blood is studied it will be found to contain an increase in the non-protein nitrogen, uric acid, and creatinin. On the other hand the total base, chlorides, and serum protein would be decreased. When this disease is allowed to progress the picture of marked dehydration with mental symptoms and finally death may ensue.

The treatment of vomiting in pregnancy therefore consists: first, in prophylaxis. From the preventive medicine standpoint we can do much to produce the proper psychologic outlook upon life. It is important that we as physicians recognize situations which may cause sexual conflicts later in life. It is important that as we treat the patients of this generation for vomiting, we impress upon them the importance of avoiding the influence of this vomiting upon the most impressionable daughters that they may have at home. We must combat frigidity and the aversion to sex where we find it and try to treat it vigorously. We must recognize and correct the tendency to abnormal mother attachment. Finally, we must work on the problem of the unfortunate patient who has an undesired pregnancy and must sympathize and try to aid her in her conflict.

We must rule out organic causes by examination of these patients. For example, if the uterus is retroverted and can be easily replaced, this should be done.

The treatment of mild cases of vomiting consists in the following:

(1) small frequent feedings of a high carbohydrate diet;
(2) restriction of fluids to between meals and in small amounts: no fluid allowed with meals;
(3) regular bowel movements must be maintained;
(4) sexual intercourse is disallowed;
(5) drugs may be given.

As to drugs:

(a) Try to attack the cause from the most obvious angle if possible, and if the etiological cause can be determined, specific drugs can be used. For example, the patients who vomit upon the change of position respond well to Dramamine when given in doses of 50 mg. three times daily. These patients have the same symptoms as the patient suffering from motion sickness.

(b) A prescription containing benzocaine 100 mg. pyridoxine hydrocloride 50 mg. and phenobarbital sodium 15 mg. can be given. This combination acts as a local anaesthetic and sedative and supplies some pyridoxine, thus inhibiting reflex vomiting.

(c) Antihystamines have been used with some success. This theory is based upon the belief that vomiting may have an allergic basis.

(d) Recently the use of ACTH has been reported when everything else has failed. This apparently bears out the feeling that the adreno-cortical hormone may influence the vomiting.

The more severe case which does not respond to ordinary treatment, should be hospitalized or a change of environment achieved in some other fashion. It is often difficult for the practicing physician to determine when to admit the vomiting patient to the hospital. A rule which I have liked to follow is that of admitting patients who show the presence of acetone or diacetic acid in the urine. It has been shown by many, particularly by Dieckman, that at this time the patient is still compensated so far as acidosis is concerned. These acetone bodies in the urine are a result of dehydration and starvation and are easily reversible. When one is encountered by such a problem the following procedure is advisable:

(1) Change of environment, or hospitalization.

(2) Visitors must be restricted. One or two friendly visitors may be allowed but it is important to make sure that those who are allowed present no mental conflict to the patient. This means that the husband himself may be the one to be disallowed as the visitor, if necessary.

(3) No food or liquid allowed for 24-48 hours. The only exception is chopped ice.

(4) Intravenous fluids are given. This is usually in the form of glucose and Ringer's solution with vitamins added. The quantity is regulated by the amount of urinary output. We usually start with 3,000 to 5,000 cc daily and as the urinary output is increased the volume of intake is decreased.

(5) It is important to keep a record of the fluid intake and output.

(6) After 24-48 hours, toast, crackers and jelly, baked potatoes, and dried chops are allowed. If these are tolerated, a normal fat-free diet is given. If no vomiting occurs for two days a full diet and ambulation is ordered.

(7) Daily enema.

(8) Weigh the patient daily.

If no improvement is found with this treatment and the patient proceeds in a downhill course, tube feeding is indicated. A tube is placed into the duodenum and the patient is fed in this manner. If, in spite of this treatment the patient's course becomes morbid as indicated by fever, jaundice, tachycardia, fall in blood pressure, severe weight loss, and psychosis, then the pregnancy must be interrupted or death will occur.

With it all, the psychosomatic approach must be maintained and the patient treated psychologically by the methods of suggestion, superficial psychotherapy and hypnoanalysis. The extent to which the practitioner can carry out these methods depends upon his ability and training. However, he can be of great aid if he bears in mind the psychoneurotic angle of the patient in this condition.

ACUTE YELLOW ATROPHY OF THE LIVER

Acute yellow atrophy of the liver is classified as a toxemia of pregnancy. It is a rare disease. Only about 60 authentic cases occur in the literature. However, I will give you a resume of this disease. The pregnant patient seems to be disposed to it since more than half of the cases reported occur in pregnant women. It is characterized by an acute onset of high temperature, jaundice, vomiting, pain in the right upper quadrant, palpable liver which later becomes nonpalpable, and tachycardia. Laboratory tests show liver damage, and notes a decrease in the blood urea, decrease in the chloresterol-esters, hypoglycemia, and an inadequate glucose activation. These patients may develop severe jaundice, dehydration and psychosis. Death occurs in about 50% of the cases. The treatment consists of feedings of high carbohydrate, high protein, and high vitamin diet supplemented with blood. Interruption of pregnancy is contra-indicated since this may hasten a fatal outcome and the disease will run its course in spite of abortion.

HYPERTENSIVE CARDIOVASCULAR DISEASE

I wish only to say a few words about hypertensive cardiovascular disease in preparation for the discussion of the next speaker. This disease, also known as essential hypertension, is really a medical problem. As obstetricians we are interested because the presence of essential hypertension increases the hazards of pregnancy about ten fold. One must bear in mind the complications of cardiac decompensation, cerebral hemorrhage, and renal complications.

Cosgrove, in a recent survey, has pointed out that the chronic hypertensive cardiovascular patients develop pre-eclampsia fourteen times as often as the normal individual, toxic separation of placenta ten times as frequently and cerebral hemorrhage twenty times as frequently as normally occurs. The maternal mortality is thirty-five times as frequent in the essential hypertensive patient and she has one-third the hope of delivering a normal child. It is thus important that the patient contemplating a pregnancy who has essential hypertension should be aware of these facts.

1104 N. Jackson Street.

Editorials

DELAWARE STATE MEDICAL JOURNAL

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Farnhurst, Del.

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Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index Medicus, published by the American Medical Association, Chicago.

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The right is reserved to reject material submitted for publication. The Journal is not responsible for views expressed in any article signed by the author.

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Vol. 25 February, 1953 No. 2

More About Dues

We call your attention once more to the editorial in The Journal for January, 1953, page 28, relating to dues for 1953. Under certain provisions of the State and National By-Laws members who have attained the age of 70 years and who have been in good standing here for 30 years (H); members who have been called into the Armed Forces of the United States (M); and members who have retired from the practice of medicine (R) are exempt from the payment of County, State, and National dues. The list of such members, as of January 1, 1953, follows:

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Allen, Ira A. B., Seaford	H
Beebe, Sr., James, Lewes	H
Benn, Reginald E., Dover	M
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Burns, Ira, Wilmington	H
Chipman, Sr., I. Lewis, Wilmington	H
Compton, Arthur G., Wilmington	R
Downes, John R., Newark	H
Ellegood, Robert E., Wilmington	H
Ellis, Walter W., Delaware City	H
Eriksen, George N., Wilmington	M
Fantazier, Elmer F., Wilmington	M
Fenimore, William N., Wilmington	R
Forrest, George W. R., Wilmington	H
Gruver, Arthur B., Wilmington	R
Hoeker, Ulysses W., Lewes	H
Holzman, Mark B., Wilmington	H
James, Oliver V., Milford	H
King, John F. W., Wilmington	M
Kraemer, William H., Wilmington	H
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Lynch, S. Howard, St. Petersburg, Fla.	R
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Walker, George L., Wilmington	R
Whitney, Leslie W., Middletown	M

In addition, the following members, while not yet eligible for exemptions of County and State dues are, by their age, exempt from the payment of AMA dues:

Banton, Conwell, Wilmington
Riggin, Howard S., Seaford
Pierson, Frank F., Wilmington

Cutouts

This issue contains the 1953 Directories of State and County Societies, and of certain related organizations. Cut out this leaf and preserve it—you will be wanting this information all through the year.

Also, there is included a list of members who have joined since the publication of the last Roster in June, 1952. Cut out this list and paste it on the last page of your Roster. We hope you have not lost your Roster—the supply is next to nil.

BOOK REVIEWS

The Delaware Citizen. By Cy Liberman and James M. Rosbrow. Pp. 448, with 52 illustrations, 4 in color. Cloth. Price, $3.75. New Castle, Delaware: By the authors, 1952.

This is a new work on civics in Delaware, intended primarily as a high school text. The senior author is a reporter on the *Wilmington Morning News*; the junior author is the counsel of the State Unemployment Compensation Commission; together, the least that can be said for them is that they know their Delaaware. Divided into nine parts, the book is a complete and accurate recital of the various governmental commissions, agencies, departments, and bureaus of the state, counties, cities and towns—how they are set up and how they function. Interwoven is a considerable mass of data on the history and course of Delaware since colonial days, including recent population and fiscal statistics.

Of particular interest to physicians are the sections on the Board of Health, Medical Examiners, Coroner, Welfare Home, Mental Hygiene Clinics, Dentistry, Pharmacy, Nursing, Physicians, Undertakers, Veterinarians, Optometrists, Oral Hygienists, Osteopaths, Chiropodists and Chiropractors. The physician will also be interested in the sections on Politics, Elections, Law Enforcement, Liquor, Crime, and—above all things, page 297—Witchcraft.

The style is fluent and easy, the format excellent, the index complete. This is a book for every high school student, every new Delawarean, every "intelligent" home, including of course the home of the physician. This latter will be amazed at the interesting and valuable material crammed between its covers. We heartily recommend this book to all Delawareans who really want to be "good" Delawareans.

Standard Nomenclature of Disease and Operations—4th Edition. Edited by Richard J. Plunkett, M. D. and Adline C. Hayden, R. R. L. Pp. 1034, with 4 illustrations. Cloth. Price, $8.00. Philadelphia: Blakiston Company, 1952.

It has been ten years since the appearance of the third edition of this work. This fourth edition of the standard guide to disease and operation recording for medical record librarians and physicians has been completely revised and brought up-to-date in keeping with medical progress.

Code numbers for acute and chronic conditions are made consistent, new heart diagnoses are included, diseases of the hemic and lymphatic systems are revised to conform to accepted terminology, the dental and tuberculosis sections are enlarged, and the section on operations includes new operative procedures used in skin grafts and cardiac surgery. Also, the supplementary terms are placed in one section and the disease and operations indexes are placed consecutively in the book.

In addition to these revisions, an International Statistical Classification of Diseases, Injuries and Causes of Death is included. These code numbers are cross-referenced to the "Standard" code numbers.

This edition is the result of three years of extensive work by an editorial advisory board and 21 committees representing each of the individual or specialty sections of the book.

This book is, of course, a must for every hospital and medical library.

NEW MEMBERS—SINCE MAY 31, 1952

Name	Address	Specialty	Tel.	School	Licen.	Joined
Brooks, Clifton R.	Newark, Del.	Pd*	2594	Wisc., 1946	1952	10/52
Davis, Walter D.	828 West St.	P	4-0883	Chicago, 1943	1952	12/52
Gallaher, Phyllis D.	1009 Park Place	ObG	4-3162	Woman's, 1928	1952	10/52
Gallaher, William T.	1103 Delaware Ave.	ObG	6-6684	Penn., 1942	1952	12/52
Gledhill, Emerson Y.	Memorial Hospital	S*(Ca)	6-3351	Columbia, 1937	1952	9/52
Karpinski, Charles M.	1501B N. Broom St.	S	4-8816	Yale, 1947	1951	12/52
Koether, Paul C.	New Castle, Del.		93-7183	New York, 1950	1952	12/52
Lang, Leonard P.	1009 Park Place	I	2-2286	Jeff., 1939	1952	10/52
Moore, Walter W.	Med. Arts Bldg.	S	4-3570	Jeff., 1947	1948	12/52
Olmedo, Livio	606 W. 10th St.	NS*	4-8835	Mich., 1949	1952	12/52
Wagner, Charles W.	New Castle, Del.		93-4875	Va., 1950	1951	1/53
Walker, Charles, Jr.	1300 N. Franklin St.	I	2-8889	Hahn., 1945	1946	10/52

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[1] Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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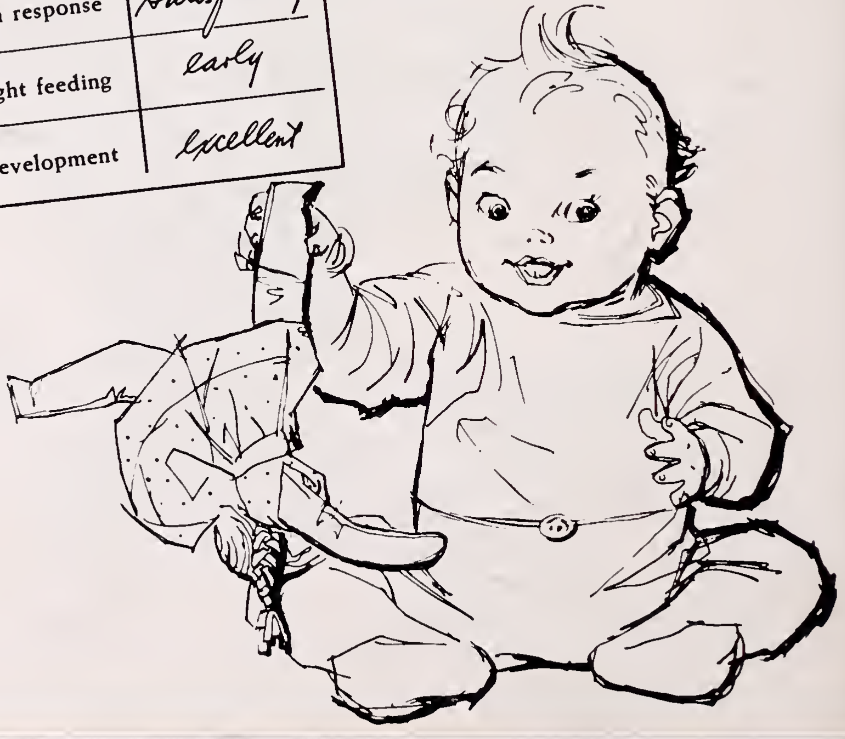

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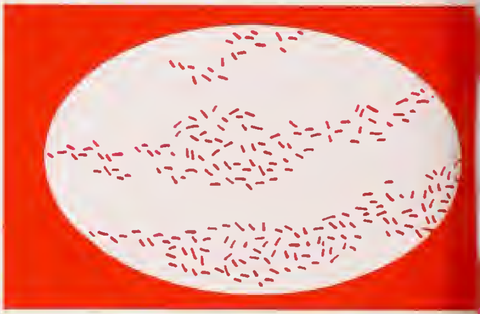

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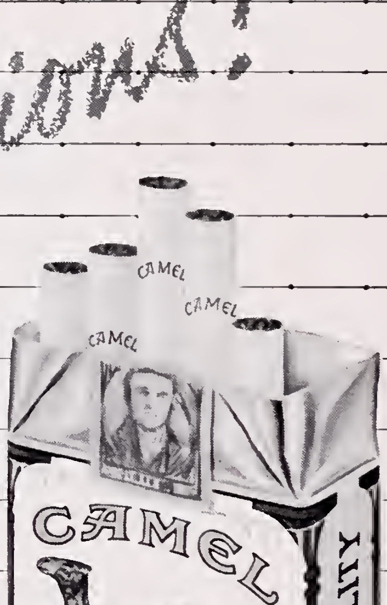

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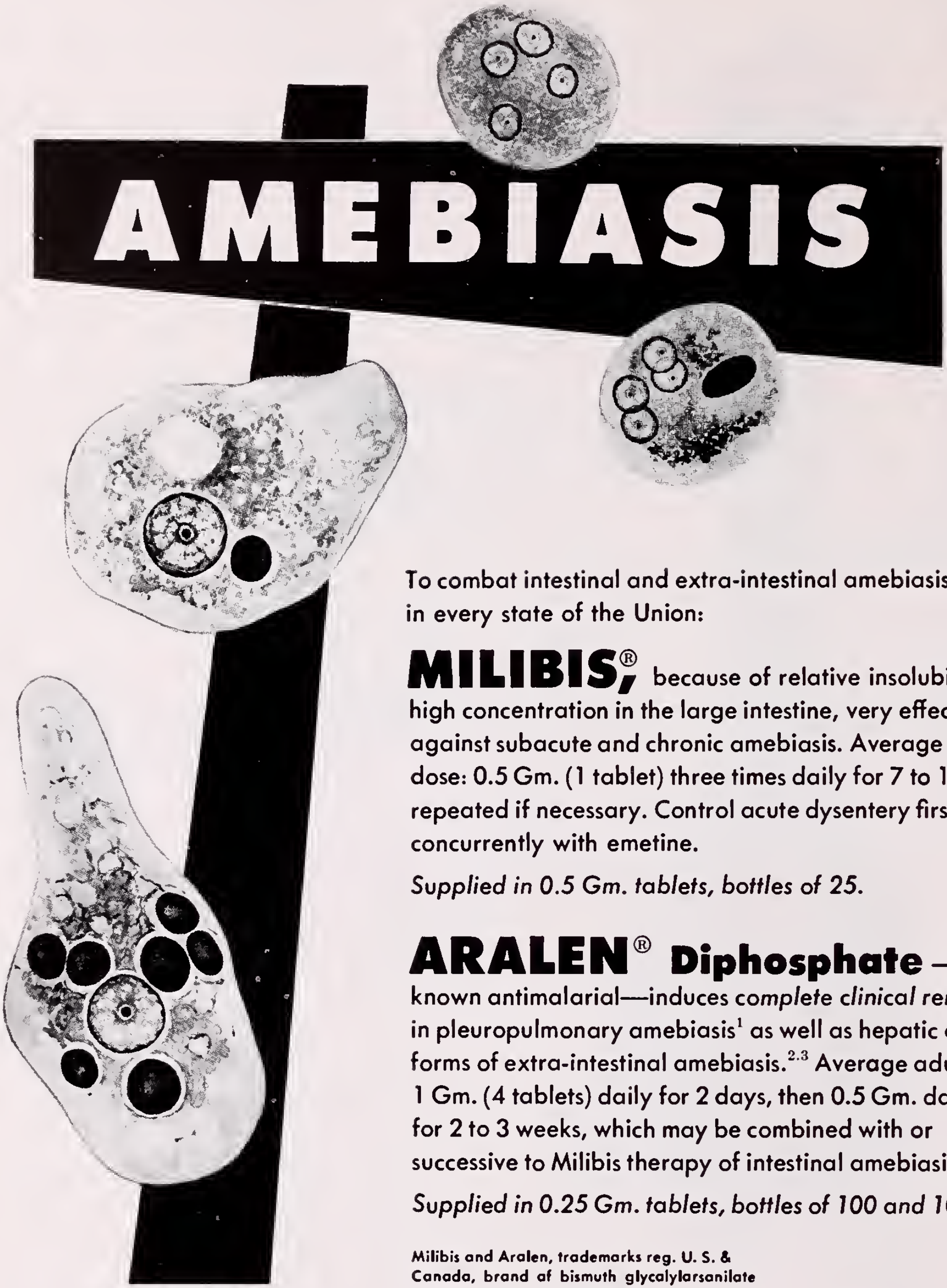

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1. Lindsay, A. E., Gossard, W. H., and Chapman, J. S.: *Dis. Chest,* 20:533, Nov., 1951.
2. Canon, N. J., Jr.: Am. Jour. Med., 6:309, Mar., 1949.
3. Emmett, J.: J.A.M.A., 141:22, Sept. 3, 1949.

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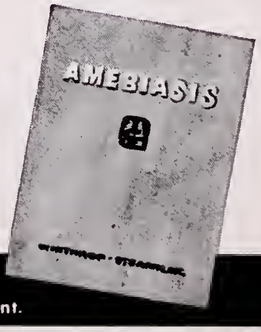

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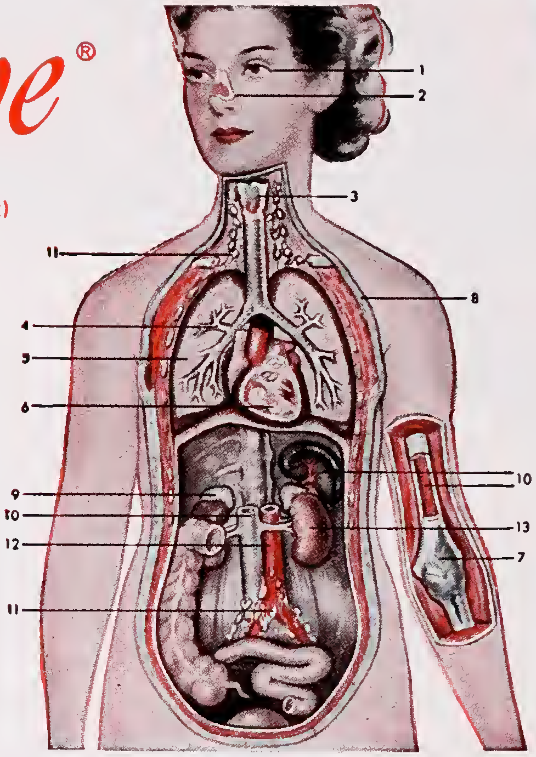

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For reasons not entirely understood at present, "heart disease and high blood pressure are more common in overweight persons than in those of desirable weight." The predisposition to atherosclerosis in obesity and the increased physical burden of carrying excess weight are undoubtedly contributing factors. Hence, as this publication points out, weight reduction is the first line of defense in decreasing the incidence of cardiac disease, and in improving the prognosis after cardiac disease or hypertension has developed.

Meat occupies a prominent position in the weight reduction diets outlined in this American Heart Association booklet. This recommendation is in sharp contrast to the erroneous belief held in former years that meat is harmful in hypertension or cardiac disease. "There is no evidence that red meat or any other form of protein in moderation has any adverse influence on blood pressure."

The magic formula for reducing is simply "Eat less." Two types of diets are outlined. One "allows moderate amounts of meat and other proteins, small amounts of fat and moderate amounts of carbohydrates." The other is "high in protein with plenty of meat, eggs and cheese, moderate in fat and low in carbohydrates." Diet No. 1 provides 70 Gm. of protein, 60 Gm. of fat, and 120 Gm. of carbohydrate; caloric yield, 1,300. Diet No. 2 provides 100 Gm. of protein, 80 Gm. of fat, and 60 Gm. of carbohydrate; caloric yield, 1,360.

The inclusion of generous amounts of meat in these diets—12 to 16 ounces of cooked meat or two substantial servings each day in Diet No. 2—is a reflection of the important role meat plays in any weight reduction regimen. It is generously included because of its high content of protein of excellent biologic value and because lean meat contains unobjectionably small amounts of fat.

---

*Food For Your Heart, a Manual for Patient and Physician, Department of Nutrition, Harvard School of Public Health, Harvard University, The American Heart Association, Inc., New York, 1952. Copies available through local Heart Association.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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1. Reich, W. J., et al. (1952), A Recent Advance in Estrogen Therapy. II. American J. Obst. & Gynec., 64-174, July

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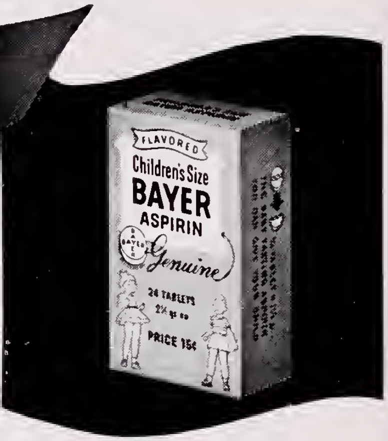

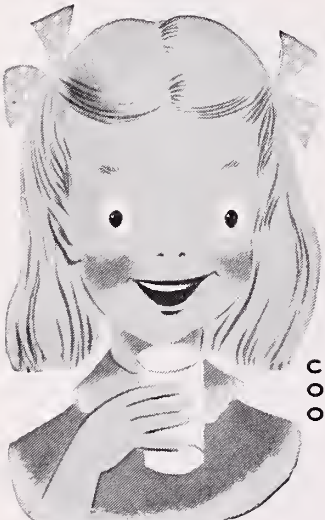

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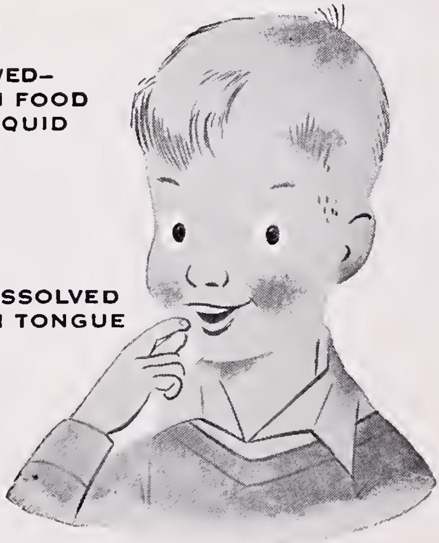

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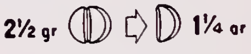

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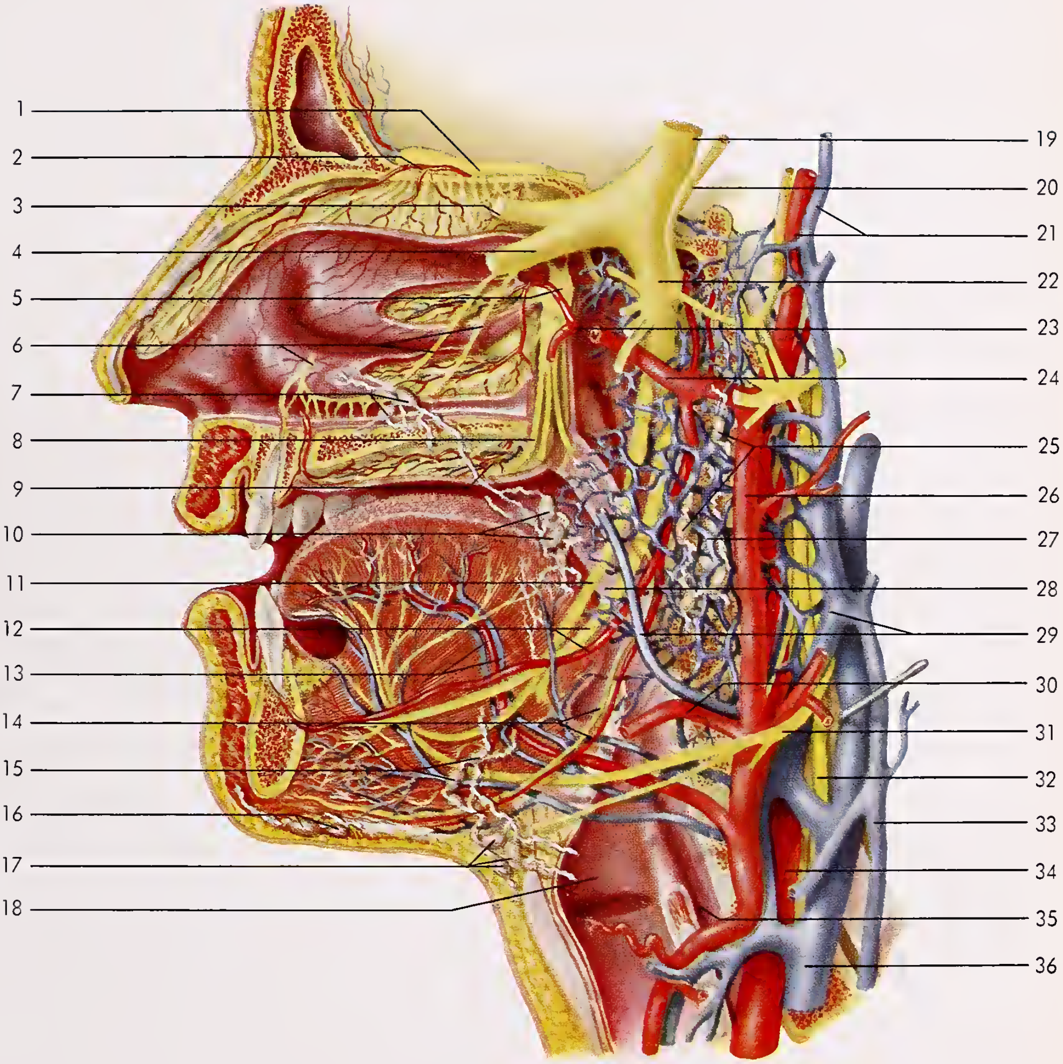

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2. Anterior ethmoidal artery
3. Ophthalmic nerve
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5. Sphenopalatine ganglion
6. Anterior, middle & posterior superior alveolar nerves
7. Maxillary lymph nodes
8. Anterior palatine nerve
9. Great palatine artery
10. Buccinator lymph nodes
11. Lingual nerve
12. Inferior alveolar nerve & artery
13. Lingual artery & vein
14. Mylohyoid nerve & artery
15. Supramandibular lymph nodes
16. Submental lymph nodes
17. Submaxillary lymph nodes
18. Trachea
19. Sensory root of trigeminal nerve
20. Motor root of trigeminal nerve
21. Superficial temporal artery & vein
22. Mandibular nerve
23. Sphenopalatine artery
24. Internal maxillary artery
25. Parotid lymph nodes
26. External carotid artery
27. Pterygoid venous plexus
28. Oropharynx
29. Anterior & posterior facial veins
30. External maxillary artery
31. Hypoglossal nerve
32. Vagus nerve
33. External jugular vein
34. Internal carotid arter
35. Esophagus
36. Internal jugular vein

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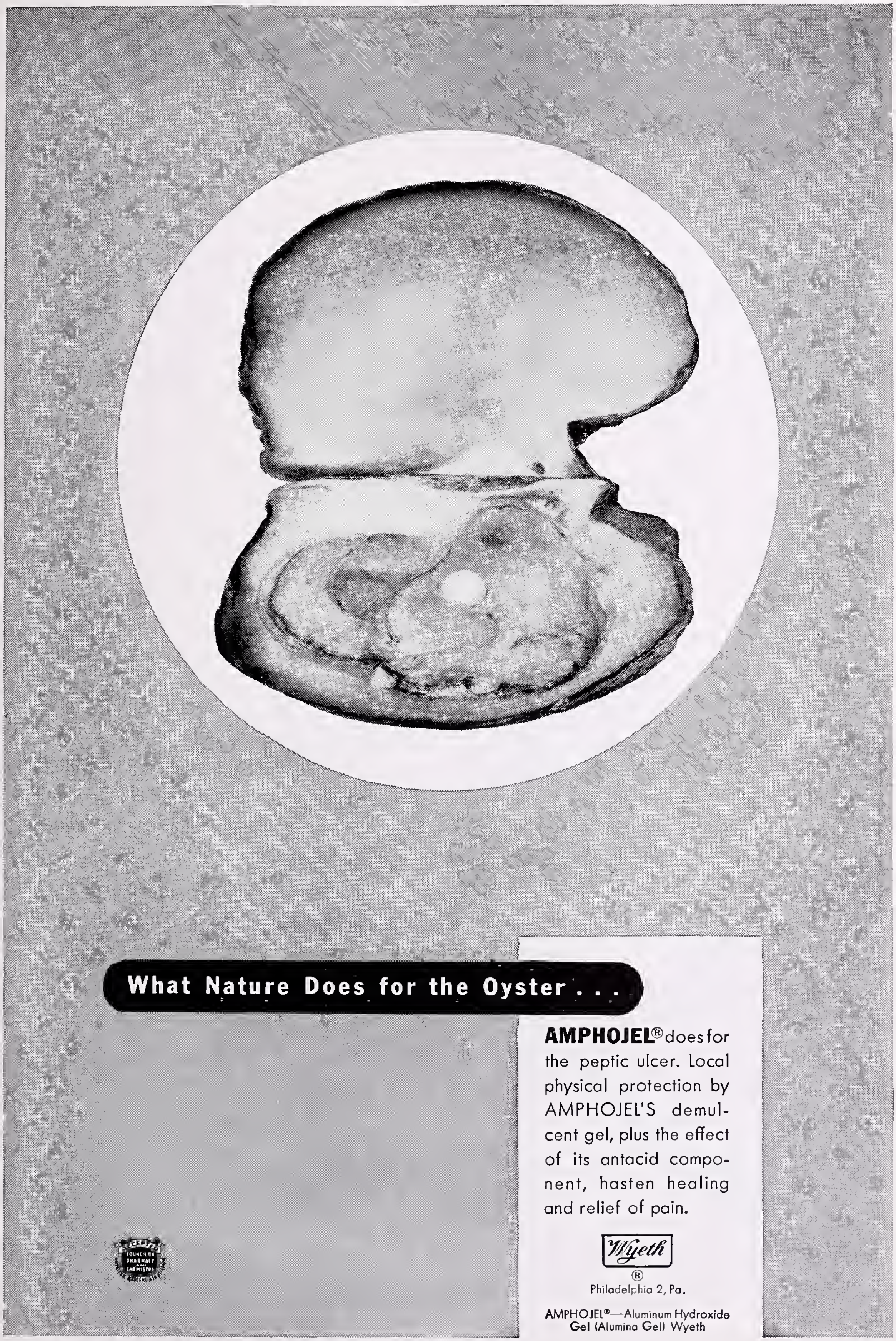

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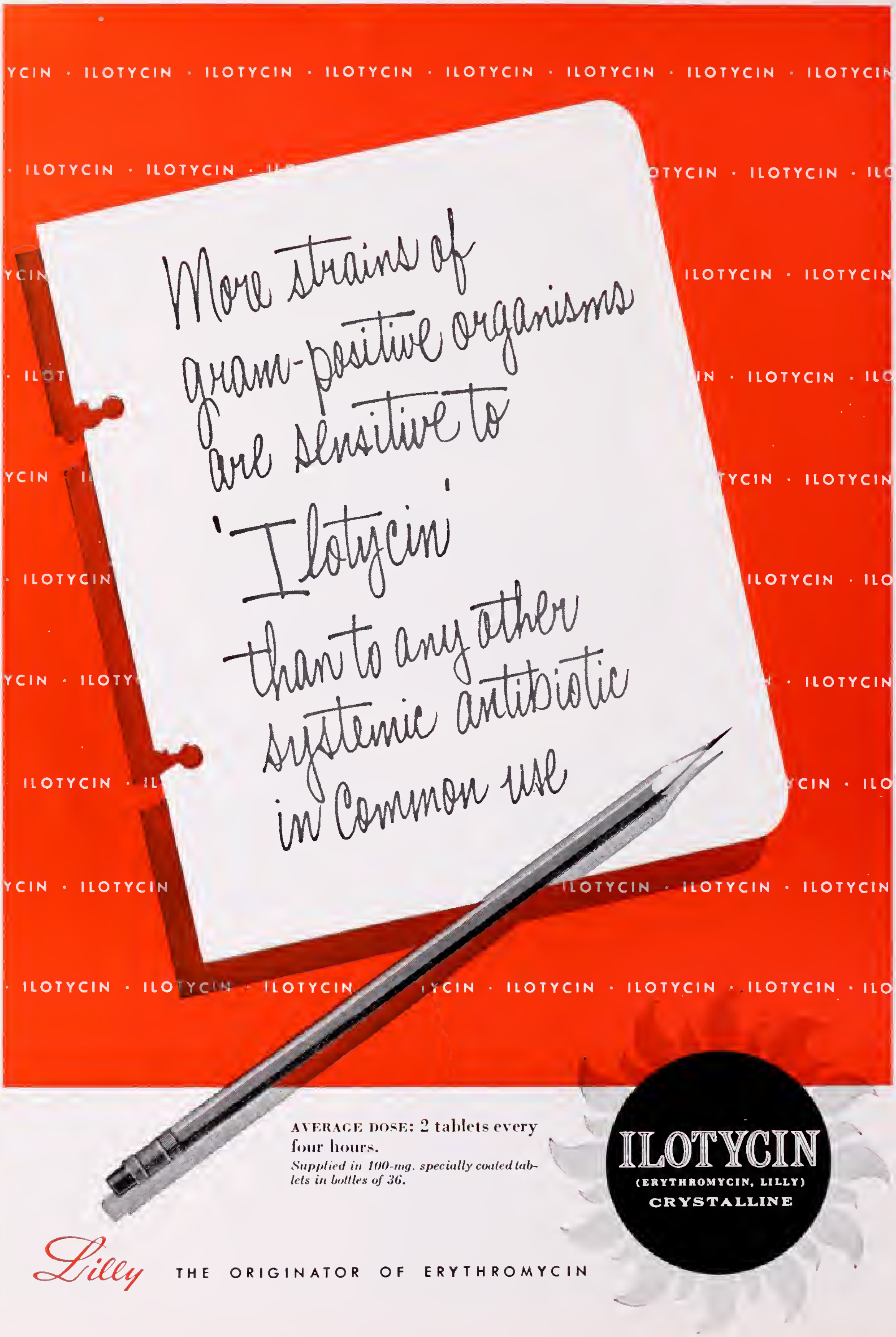

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THE A. B. C. OF ANTIMICROBIAL THERAPY*

Harrison F. Flippin, M. D.,**
Philadelphia, Pa.

The practice of medicine offers no greater satisfaction than the successful treatment of a patient with a severe infection which, prior to modern antimicrobial therapy, proved highly or uniformly fatal. Early and accurate diagnosis, followed by the proper use of these agents leads directly to this earned reward. Nevertheless, certain factors, such as the spectacular multiplication of available antibiotics and the increasing use of combinations of these agents, has tended dangerously to obscure those fundamental principles which are inherent to the success of this type of therapy. As a result of these factors, there seem to be increasing numbers of drug-resistant bacteria and of superinfections with endogenous bacteria and fungi which are likewise resistant to these agents, as well as an increasing incidence of untoward reactions to these drugs.

A fundamental requirement to successful treatment with any drug is that the physician have the clearest possible understanding of the therapeutic agents he prescribes. For the most part, the practicing physician is bewildered, and justly so, by the complications of antimicrobial therapy. The need is great therefore for a simple guide to the intelligent use of these drugs, although the time is not yet ripe for such an undertaking. The chief obstacle to the solution is our failure to understand fully the mode of action of these drugs and the nature of many of the toxic reactions associated with their use. These factors have impeded progress for a better understanding as to their synergistic and antagonistic activities, the development of bacterial resistance and cross-resistance, and the untoward reactions following their administration. Nevertheless, through the competitive research efforts of the pharmaceutical industry in hopes of finding more effective and less toxic agents the number of these drugs steadily increases, which makes it virtually impossible for a busy practitioner to evaluate properly the available antimicrobial agents. Until these fundamental problems are more fully understood, the practicing physician can best contribute to the welfare of his patient and to the advancement of knowledge in this field by following certain principles of antimicrobial therapy in infectious diseases.

Early Diagnosis of Infectious Diseases

The length of time that elapses between the onset of the infection and the beginning of treatment is not necessarily of great importance, except in those more serious diseases, such as infections involving the blood stream, the meninges, and the endocardium. Nevertheless, one should institute therapy as soon as the clinical diagnosis has been made and the necessary material has been collected for laboratory study. In a number of cases of infectious disease it is impossible to be sure of the diagnosis when the patient is seen for the first time. Although antibiotic therapy need not be withheld until a bacterial diagnosis has been established, there are occasions when it is justifiable to wait for further developments in order to arrive at a more accurate diagnosis, or to see if the condition will not improve spontaneously. Today, however, with the widespread use of antibiotics, the physician often finds it difficult to withhold these miracle drugs at the time of his initial visit. The patient demands relief and the relatives are insistent that something be done. To succumb to these pleas is often literally a fatal mistake. These therapeutic agents may modify the disease so as to confuse the diagnosis and, as a result, we are seeing an increasing number of patients in whom the classical signs and symptoms of disease are masked or modified by these drugs. For this reason, it is sometimes advisable to discontinue all chemotherapy in those patients in whom the response has been unsatisfactory and in whom the diagnosis is uncertain. Not only does this give the disease an opportunity to manifest itself more definitely, but also eliminates the possibility of drug toxicity.

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*Read before the Medical Society of Delaware, Rehoboth, September 9, 1952.

**Associate Professor of Medicine, University of Pennsylvania.

ACCURATE DIAGNOSIS OF INFECTIOUS DISEASES

As a result of the effectiveness of these new therapeutic agents, there has been a definite trend towards carelessness in diagnosis both from a clinical and laboratory standpoint. Obviously, there are many infections which respond dramatically to the antibiotics without an accurate diagnosis. In a number of instances, the causative organism can be accurately recognized without laboratory aid, by virtue of the characteristic clinical picture of the disease. In certain infectious diseases, however, the diagnosis to a large extent is one of exlusion and in such cases it is often necessary to accumulate considerable clinical, laboratory, and X-ray data. It is in this group that the proper selection of laboratory tests, together with an adequate history and physical examination aid greatly in establishing an accurate diagnosis.

I. ETIOLOGICAL DIAGNOSIS

In view of the action of the antibiotic drugs, the determination of the causative agent is the most important single factor in the successful management of infectious diseases. Unfortunately, the wide therapeutic range of these drugs has resulted in a failure in most instances to establish an etiological diagnosis. Usually, the necessary laboratory studies are reserved for cases failing to respond to therapy. For this reason, accurate figures dealing with the treatment of large groups of infectious diseases are becoming increasingly difficult to assemble and as a consequence data regarding the use of the newer antibiotics are limited. Although these newer drugs possess a broader spectrum of activity, certain patterns have developed which demonstrate the fact that certain groups of bacteria are more easily controlled by different antibiotics. For example, certain strains of Friedlander's are more sensitive to aureomycin than to streptomycin. Many strains of staphylococci are resistent to penicillin, but will respond to aureomycin and chloramphenicol. Typhoid infections are best treated with chloramphenicol. Not infrequently, a unique situation exists wherein an antibiotic with a limited range of activity is the best drug for an infection, such as polymyxin in pseudomonas infection. In other words, successful antibiotic therapy is becoming a more specific form of treatment and depends to a certain degree on specificity of action—hence, the importance of knowing the causative agent in each infection in order to administer the most suitable antibiotic. Theoretically, this should be done routinely, but from a practical standpoint, this is difficult to carry out. Therefore, there must be some middle road between the practice of giving antibiotics indiscriminately to everyone with an elevation in temperature and that of withholding antibiotic therapy until a definite diagnosis is established. Certainly, all serious infections, such as those involving the blood stream, the meninges, the endocardium, and those infections which fail to respond satisfactorily, demand efforts on our part to establish an etiological diagnosis.

Once the organism has been isolated, antibiotic therapy can be selected intelligently for most infections without resorting to sensitivity tests, except when one is dealing with bacteria, different strains of which are known to exhibit wide variations in susceptibility to the antibiotics under consideration. It appears to be generally true that stains of gonococci, pneumococci, and group A. Hemolytic streptococci are quite uniform in their susceptibility to a given antibiotic. Other organisms, obviously, differ widely in their antibiotic sensitivity, such as staphylococci, enterococci, and proteus organisms. Although the determination of bacterial sensitivity to antibiotics is a procedure widely employed, it is one which is not infrequently misleading to the physician. The use of these tests is based on the assumption that the effectiveness of the various chemotherapeutic agents determined by in vitro tests parallels the therapeutic results of these agents. Clinical results are, of course, influenced by the degree to which the particular antibiotic is distributed in the body and it is a common experience that the therapeutic effectiveness differs from the results reported in in vitro tests. In this connection, the clinical activity of penicillin is especially likely to be under-estimated in in vitro tests. Infections due to a strain only slightly susceptible to concentrations of penicillin employed in laboratory tests and moderately or highly susceptible to other antibiotics, may clinically respond more rapidly to penicillin because of the higher blood and tissue concentrations readily obtainable with the latter drug. In general, it is wise to consider sensitivity tests as performed in the ordinary laboratory as only qualitative guides to distinguish susceptible from non-susceptible organisms.

In order to provide more rapid information to the physicians, we are employing in our laboratory the following routine. Organisms are tested for sensitivity to penicillin, streptomycin, aureomycin, chloramphenicol, and terramycin at the concentration easily obtained by moderately intensive chemotherapy. Organisms are reported as sensitive or resistant. Any organism found resistant to any of these agents is studied by serial tube dilution for the antibiotic of choice for this organism. Because of the high sensitivity of streptococci (enterococci excluded), pneumococci, H. influenzae, neisseriae to either or both penicillin and the wide spectrum antibiotics, these organisms are not tested routinely for response to antibiotics. However, all staphylococci, enterococci, coliforms, Shigellae, proteus, Salmonellae, and Klebsiellae organisms are studied. In addition, all organisms in cases of subacute bacterial endocarditis are tested to penicillin by serial tube dilution technique.

In view of the above, the physician must be familiar with the rapid progress which continues in the field of infectious diseases. New types and new distribution of etiological agents are calling for new diagnostic methods. Not only must the material for study be collected properly, but such information as the stage of the disease or duration of illness, pertinent signs and symptoms, and the type of therapy being employed should be recorded.

II. Clinical Diagnosis

The diagnosis of infections cannot be made merely from laboratory studies. It remains for the physician to determine the etiology, not only from these findings but from a detailed history and careful physical examination.

A. *History Taking.* One of the most important steps in arriving at a diagnosis is to recognize and note the earliest symptoms of the disease. It is for this reason that the general practitioner is in an enviable position to record such facts before starting chemotherapy, which greatly adds to the stock of common knowledge. Therefore, the importance of a thorough history cannot be overemphasized. Not infrequently, valuable information pertaining to the patient's illness can be elicited, not only from the patient, but from other members of the family. The history of an urban inhabitant drinking raw milk in the country; the removal of ticks from a dog in the late spring or early summer; recurrent bouts of furunculosis, diarrhea; previous medications; trauma; a recent tooth extraction; contact with animals, and many other leads will often supply the needed information. Today, we are often too busy to take a detailed history before starting treatment.

B. *Physical Examination.* It has been said facetiously, but with some degree of truth, that if a patient does not improve after 48 hours of antimicrobial therapy, a physical examination should be performed. Certainly, no patient should receive any therapy without first having a thorough physical examination. It is true that not infrequently the only abnormal physical finding in a case of infectious disease is that of fever. However, this does not excuse the physician from thoroughly examining all parts of the body for possible diagnostic clues. Although the common denominator in systemic infections is fever, it does not follow that all fevers are due to infection, although in this chemotherapeutic age there is a growing tendency to treat all fevers as such until proven otherwise. If perchance the therapeutic test is unsuccessful, then one is confronted with the problem of arriving at an accurate diagnosis. It is in this so-called failure group that we meet most of our diagnostic problems today. Fortunately, however, most infections, if untreated, will sooner or later give rise to characteristic symptoms, physical findings, or abnormalities of laboratory tests which, taken singly or together, will point the way towards a more accurate diagnosis. There are probably fewer cases of fever of undetermined etiology since the advent of modern therapy because many infections are eradicated by these agents without their exact location or nature being known. As mentioned previously, recognition of most infectious diseases is not difficult, as in many instances the causative organism can be accurately recognized without bacteriological proof by virtue of the classical clinical picture resulting from the infection. Again demonstrating the importance of recognizing and recording the early signs of the disease.

PROPER USE OF ANTIMICROBIAL AGENTS

Penicillin. Penicillin, by virtue of its bactericidal action remains the most effective antibiotic against the majority of bacterial infections and, since it is least expensive and toxic, it remains the drug of choice in the treatment of most of the infectious diseases encountered in this part of the world. Certainly, very few lives will be lost by administering penicillin initially and, if subsequent clinical and laboratory studies of the disease are such as to demand it, then employing one of the other antibiotics. Penicillin continues to be the drug of choice for all gram-positive bacterial infections including pneumococci, staphylococci, and Hemolytic and Non-Hemolytic streptococci infections. In addition, it is the most effective drug for the treatment of syphilis, gonorrhea, anthrax, and actinomycosis. The confusion concerning penicillin administration is, in considerable measure, attributable to the variety of preparations available. The relative advantages of the five most commonly employed dosage forms may be summarized as follows: (It should be pointed out that the recommended frequency of dosage is dependent upon the type and severity of the infection under treatment.)

1. *Crystalline benzyl penicillin in aqueous solution* administered intramuscularly, 100,000 units. Peak plasma level: 3.0 units. Time after administration: 15-30 minutes. Total duration of therapeutic plasma level: 3 hours. Recommended interval for injections: 3 to 12 hours. Advantages: Lowest cost per dose, most rapid action, highest peak level with consequent greatest diffusion into serous cavities and abscesses, shortest duration of toxic reactions. Disadvantages: Necessity for frequent (2 to 3 daily) injections, inconvenient at home.

2. *Procaine penicillin with sodium carboxymethyl-cellulose prepared for aqueous suspension* (Crystacillin) 300,000 units administered intramuscularly. Peak plasma level: 1.0 units. Time after administration: 2 hours. Total duration of therapeutic plasma level: 24 hours. Recommended frequency of doses: 12 to 24 hours. Advantages: Requires only a single daily injection for most infections. Most economical preparation for routine hospital use. Disadvantages: High plasma levels are not obtained even with frequently repeated doses.

3. *Procaine penicillin with aluminum monostearate in oil,* intramuscular administration, 300,000 units. Peak plasma level: 0.5 units. Time after administration: 1 hour. Total duration of therapeutic plasma level: 48 hours (in most instances 96 hours). Recommended frequency of doses: 48 hours. Advantages: Most convenient preparation for home administration. Disadvantages: Toxic and allergic reactions to penicillin, procaine or oil, although rare, are of long duration.

4. *Penicillin,* buffered, oral tablets, 200,000 units. Peak plasma level: 0.4 units. Time after administration: 30 minutes. Total duration of therapeutic plasma level: 3 hours. Recommended frequency of doses: 3 to 6 hours. Advantages: Ease of administration, especially at home. Disadvantages: Greater cost.

5. *Neo-Penil in aqueous suspension (hydriodide of diethylaminoethyl ester of penicillin G)** 500,000 units administered intramuscularly. Peak plasma level: 0.8 units. Time after administration: 2 hours. Total duration of therapeutic plasma level: 24 hours. Recommended frequency of doses: 12 to 24 hours. Advantages: Requires only a single daily injection for most cases. Especially recommended for chronic lung conditions. Disadvantages: High plasma levels are not obtained even with frequently repeated doses.

It may be seen that the characteristics of these preparations provide advantages for specific purposes. The use of procaine penicillin in aqueous suspension once daily is less expensive than aqueous penicillin given at three or four hour intervals, and is adequate for most infections. When such infections as meningitis or endocarditis are present, however, the low level concentrations afforded by procaine penicillin or Neo-Penil will not provide sufficient diffusion and frequent intramuscular administration of aqueous crystalline penicillin is indicated. In the home, the advantage is evident of using procaine penicillin with aluminum monostearate in oil so that injections may be given at one or two day intervals. Also, under these circumstances, oral penicillin given at three hour intervals in doses of 200,000 units for the average adult provides effective plasma levels. A recently introduced compound, benemid, offers considerable promise of increasing the usefulness of oral penicillin, as well as aqueous crystalline penicillin in such cases as subacute bacterial endocarditis due to a relatively penicillin-resistant organism. This benzoic acid derivative, given in 0.5 gm. doses four times daily, exerts the same action in enhancing penicillin blood levels as was manifested by carinamide in much larger dosage. Benemid has been incorporated into the oral penicillin preparations in such fashion that a pill containing 200,000 units of penicillin and 0.5 gm. of benemid, taken every 6 hours, will produce sustained therapeutic levels in the blood.

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*Neo-Penil is the trademark of Smith, Kline & French Laboratories, Philadelphia, for the diethylaminoethyl ester hydriodide of penicillin G. In the European literature this ester is variously identified as Leocillin (Leo Pharmaceutical Products, Copenhagen, Denmark); as Estopen (Glaxo Laboratories, Ltd., England); as Bronchocilline (Laboratoire Roger Bellon, France); and by certain investigators as LG1, to distinguish it from the hydrochloride, which they identify as LG2.

Neo-Penil. A new penicillin ester, Neo-Penil (the hydriodide of diethylaminoethyl ester of penicillin G, known generically as penethamate hydriodide), has been shown to produce higher concentrations of penicillin in certain body tissues or organs than do the commonly employed penicillin salts. The concept of penicillin derivatives having affinity for certain tissues or organs of the body is not new, but this is the first instance in which the phenomenon has been observed to a degree that is therapeutically significant. Animal and human experiments have shown that Neo-Penil has a far greater affinity for the lungs than have the other penicillin preparations. In addition, animal experiments indicate a high penicillin level in the brain following the administration of the antibiotic in this esterified form. Experiments in humans have demonstrated unusually high penicillin levels in the cerebro-spinal fluid following its administration. Since these unusually high tissue concentrations occur in the absence of high blood levels, it is felt that the tissue levels are due to the pharmacological property of the drug and not merely to a high blood-tissue diffusion gradient. During the past year, this new penicillin compound has been studied at the Philadelphia General Hospital and found to be highly effective in bacterial pneumonia, lung abscess and bronchitis as well as a valuable adjunct in the treatment of bronchiectasis.

Streptomycin. The development of aureomycin, chloramphenicol, and terramycin has to a significant degree diminished the importance of streptomycin (dihydro-streptomycin) as a therapeutic agent, except that streptomycin remains uniquely valuable for the treatment of tuberculosis and should be reserved for the same; except in those instances where it is used in conjunction with other antibiotics, or in resistant infections. Dosage schedules vary according to type and severity of infection.

Aureomycin, Chloramphenicol, and Terramycin. For the most part these newer chemotherapeutic agents have a similar range of antibacterial activity and are usually referred to as the wide spectrum antibiotics, namely certain virus diseases and rickettsiae, both gram-negative and gram-positive bacteria, including penicillin-resistant, streptomycin-resistant, and streptomycin dependent organisms. Which of these drugs is used is usually merely a matter of personal preference or habit, but it is important to recognize the few individual differences in behavior in this group. Best known is the strikingly greater effectiveness in typhoid fever of chloramphenicol. Dosage for these drugs ranges from 2 to 4 gms. daily in divided doses every 4 to 6 hours.

It is to be remembered that whereas penicillin and streptomycin in adequate concentrations are bacteriocidal and in lower concentrations are bacteriostatic, the action of aureomycin, chloramphenicol, and terramycin is merely bacteriostatic. As a consequence, administration of the latter agents should be continued several days longer after defervescence than is necessary with penicillin and streptomycin.

Polymyxin. Although polymyxin B sulfate is an agent of considerable toxicity, its unique effectiveness in infections due to pseudomonas aeruginosa has justified its introduction into clinical practice. This antibiotic should be employed parenterally only in hospitalized patients, since careful observation for renal damage is essential to its safe use. Its parenteral use is justified for the serious and increasingly frequent instances of pyelonephritis, septicemia, or meningitis due to pseudomonas. Infections with some strains of this organism may be susceptible to streptomycin or one of the wide-spectrum antibiotics; if the infection fails to respond to these agents, a trial of polymyxin B appears justified.

Sulfonamides. With the introduction of the antibiotics, indications for the sulfonamides have become increasingly more restricted. Nevertheless, the sulfonamides are still indicated in the treatment of uncomplicated urinary tract infections, certain gastro-intestinal disorders, and in combination with the antibiotics in such diseases as bacterial meningitis. Because of the potential kidney irritation produced by these drugs, it seems advisable to employ triple mixtures of the sulfonamides or one of the more soluble preparations, such as gantrisin. The oral administration (an initial loading dose of 3 to 4 gm., followed by 1 gm. every 4 to 6 hours) has proved to be the most satisfactory method of administering the sulfonamides.

Combined Antibiotic Therapy. It is frequent practice in the treatment of infections to employ antibiotics in shot-gun fashion. This practice has been furthered by the recognition that in certain instances a definite synergistic action, or additive effect, is obtainable from certain combinations — Tuberculosis (streptomycin plus PAS); Brucellosis (streptomycin plus aureomycin); Enterococcic endocarditis (penicillin plus streptomycin); Bacterial meningitis - staphylococcic, pneumococcic, and streptococcic (penicillin plus sulfonamides); H. Influenza (streptomycin plus sulfonamides). In peritonitis and mixed bacterial wound infections, penicillin and streptomycin have been effective, although the wider spectrum antibiotics seem equally as effective. Despite these examples, there are experimental and clinical studies which show that certain combinations result in antagonism and diminished effectiveness. Aureomycin, terramycin, and chloramphenicol have been shown to diminish the effectiveness of penicillin. The interference is apparently due to the inhibition of multiplication of organisms produced by the bacteriostatic action of the wide spectrum antibiotics; the bactericidal action of penicillin is manifested only with rapidly multiplying organisms and hence penicillin activity is impaired by the concomitant use of these bacteriostatic agents. At this time it is evident that the problem of antibiotic synergism and antagonism is far from settled. Certainly, combined therapy should be restricticted to the relatively few situations in which specific combinations are of established value. For the most part, combined antibiotic therapy is useful and indicated chiefly in chronic infections. There is no justification for the use of multiple agents in most acute infections and it is certainly the part of wisdom to use single agents whenever possible.

Prophylactic Use of Drugs

These drugs are not to be used prophylactically, except when the complication to be avoided is a serious one and one which occurs frequently in the absence of precautions. Certainly, their prophylactic use is justified in streptococcal sore throat, recurrent rheumatic fever and in patients with valvular heart disease in whom oral, colonic, rectal, or transurethral operative procedures are contemplated.

Drug Resistant Infections

The widespread and indiscriminate use of the antimicrobial agents has resulted in an increased number of drug resistant bacteria. This increased microbial resistance that follows exposure to an antibiotic not only holds for the antibiotic itself, but also the possibility of the development of cross-resistance to other antibiotics exists. Acquired resistance results from continued exposure to sub-inhibitory concentrations of these drugs. However, the increasing incidence of penicillin-resistant staphylococcal infections is thought to be due to the gradual reduction in numbers of naturally sensitive strains, thereby giving the naturally resistant strains an opportunity to become predominant. Occasionally, superinfections with microganisms usually regarded as nonpathogenic will occur during antibiotic therapy and prove to be insensitive to the drug used. Such infections result from the dislocation of the normal bacterial flora of the sino-respiratory and gastrointestinal tracts.

Drug Toxicity

The untoward reactions following antibiotic therapy are becoming increasingly familiar. Penicillin remains the least toxic of the now available antibiotics and, if the reactions are not too severe, treatment can usually be continued with the aid of many symptomatic and anti-allergic remedies. Obviously, the more serious reactions demand discontinuance of the drug. Many patients can tolerate penicillin even after a previous allergic reaction to the same, thus making difficult an evaluation of the so-called hypo-allergic penicillin preparations. Vertigo and deafness are the chief toxic reactions following streptomycin therapy. Fortunately, however, with the present-day dose schedule in combination with PAS employed in tuberculosis, this complication has been markedly reduced.

Aureomycin, terramycin, and chloramphenicol frequently give rise to gastrointestinal and vaginal disorders which at times may become quite severe. Chloramphenicol may cause certain fatal blood dyscrasias. However, until a better drug is developed for the treatment of typhoid fever and certain penicillin-resistant organisms, chloramphenicol will continue to have a definite place in our therapeutic armamentarium. It is felt that the gastrointestinal and vaginal lesions are the result of altered bacterial flora which give rise to a vitamin B deficiency. Hence the advisability of administering liver extract intramuscularly and vitamin B complex orally in conjunction with the use of the wide spectrum antibiotics. The use of Yogurt, acidophilus and buttermilk all are worth a trial in cases with these reactions. Obviously, when one considers the untoward reactions associated with these agents, it is essential that the physician who undertakes to prescribe these drugs shall exercise the same caution as when he administers any other highly useful but potentially dangerous drug.

Finally, despite the proven therapeutic effectiveness of the antimicrobial agents, it is to be remembered that they are not to be used to the exclusion or neglect of other proven forms of therapy. Furthermore, although the mode of action of these agents and the nature of many of the toxic reactions associated with their use remain obscure, a great deal has been learned concerning the use of these drugs which should serve as a deterrent to their indiscriminate use, both prophylactically and therapeutically. Until these fundamental problems are more fully understood, therefore, the practicing physician can best contribute to the welfare of his patient and the advancement of knowledge in this field by following certain principles of therapy.

255 S. 17th Street.

Discussion

Dr. William J. Holloway (Wilmington): We are privileged to have had as our speaker and authority on the treatment of infectious diseases with antimicrobial therapy. Dr. Flippin has covered a broad subject with the ease and certainty that comes only with familiarity. If, in practice, we could follow the axioms set before us this morning, we would find our antibiotic problems simplified and our failures minimized. The greatest obstacle to intelligent and successful management of infectious diseases is the indiscriminate administration of antimicrobial drugs before an honest attempt is made to identify the etiological agent and evaluate the need for specific therapy.

As practitioners we should again familiarize ourselves with the basic science of bacteriology and at least have a working knowledge of the characteristics of the various infectious agents. We might then recognize the tenacious sputum of a Klebsiella pneumonia and guide our therapy accordingly, thereby saving twenty-four hours awaiting the bacteriological report. Conversely, when the bacteriologist informs us of infection with a type-3 pneumococcus, we should anticipate a slower response to average penicillin dosage. We need not specialize in the science of bacteriology but we must not ignore it.

As clinicians, we should be able to detect the site of an infection and suspect its most probable etiological agent. For example, E. coli is the most frequent invader of the urinary tract and the pneumococcus the most common cause of pneumonia. Therefore, in such instances, we have some guide to the proper drug even without bacteriological studies.

The laboratory is most helpful when one has access to its facilities. As stated by Dr. Flippin, bacteriological studies are necessary when treating endocarditis, meningitis, and resistant infections. Our experience would indicate that blood cultures are an important adjunct in the management of pneumonia. I say this because of the difficulties we have encountered in obtaining satisfactory sputum specimens. The importance of routine blood cultures in pneumonia has been demonstrated by the frequency of positive blood cultures in the presence of negative sputum cultures. The technique of blood culture at the Delaware Hospital undoubtedly plays a large part in this success. The procedure of obtaining blood cultures at home is almost as easy as in the hospital; and, on the second preantibiotic visist, the physician could well be equipped for the proedure.

Dr. Flippin's comprehensive review of penicillin therapy leaves little that I may add. I would like to note that our own experienee (with about thirty cases of bacterial pneumonia) at the Delaware Hospital would confirm the observation of others: that detectable penicillinemia is not necessary for clinical and bacteriological cures. We gave 500,000 units of oral penicillin every eight hours for three doses followed by 100,000 units every six hours whicch would not produce a persistently demonstrable blood level. However, the tissue penicillin level was apparently adequate because our cure rate was high.

We have found streptomycin valuable in combination with penicillin in the treatment of chronic lung abscesses and have a number of medical cures with approximately one month of such combined therapy. In the past week we have had occasion to treat a patient with a type-3 pneumococcal pneumonia who failed to respond to adequate penicillin dosages (i.e.,) 300,000 units intramuscularly daily for four days, followed by 1.8 million units per day for four days. The addition of 2 gms. of streptomycin per day to the higher penicillin dosage resulted in clinical improvement in 72 hours.

The overall problems of antibiotic synergism and antagonism has become more and more confusing. We have tried to follow the dicta of Jawetz, which we feel are quite sound. He classifies penicillin, streptomycin, bacitracin, and neomycin in a group as bacteriocidal agents. The broad-spectrum antibiotics—aureomycin, terramycin, and chloramphenicol in a second group as bacteriostatic agents. The combination of two or more bacteriocidal drugs can be generally expected to result in syngerism. The addition of a bacteriostatic drug to a bacteriocidal drug may produce antagonism unless the organism is a resistant to the bacteriocidal agent. The combination of two bacteriostatic drugs results in additive effect, not synergistic. This additive effect could be obtained by increasing the dose of a single bacteriostatic drug.

I hope that Dr. Flippin's words this morning will give us fortitude to lengthen our periods of watchful waiting and shorten our period of indiscriminate therapy.

Dr. L. C. McGee (Wilmington): The mark of a competent teacher in medicine is found in the ability to review his experience and pick out of that experience salient features. That is No. 1. No. 2 is the ability to present it so it is understandable.

We have been fortunate, today, as in past sessions of this Society, in hearing Dr. Flippin deal with the use of antibiotics in medicine. It is unnecessary and would be discourtesy at this hour to repeat much of what he has said, which is exceedingly important, and I hope when you re-read his report in The Journal that it will serve to re-emphasize what he has said to us today. I should like to pick out just two or three points for repetition at this time.

No. 1 is that we are seeing in the medical services repeated instances of disease which appears to be due to the therapy. I am reminded that the dermatologist of the past has marked his service by the one in which the patient gets no therapy for the first week or ten days. He looks at the lesion and trys to make up his mind what is back of it. At the end of the ten-day period he calls in the house officers and students and points out his findings, and so forth.

Now, this thing is coming into the field of internal medicine with increasing frequency, at least at the Delaware Hospital, where we, too, have to discontinue everything, and watch the patient, and sometimes find that no therapy is required.

Next, I should like to emphasize the limitations of the antimicrobial test which is so popular, that is, the disk and plate method. It is not sufficient as a guide. There are too many inconsistencies, and now we have accumulated sufficient experience in the literature wherein certain bacterial types are known to be treated by certain antibiotics. But don't be misled by a disk report, when you know this "bug" should respond to a certain drug. Go ahead and use the drug judiciously and find out for yourself how the drug works in the patient. That, after all, is the important thing; not how it works in the laboratory against the particular organism.

Why is it that we must have an occasional report, such as that put out recently concerning toxicity of chloramphenicol, for its salubrious effect on the patient? We have short memories. Every few years this sort of thing happens with new or old drugs. I think it has happened often enough for those men who are mature, long before they reach the "delinquent years" in practice, and even the younger men, to come to be conscious of this and to utilize that knowledge. We know that there is no medicine what at some time in some patient has not caused a reaction. That being true, why use indiscriminately a new preparation unnecessarily as a "shot in the dark?" Or, if you must use medicine to keep the patient happy, why not pick one of the oldest and best-known drugs to protect yourself and the patient against the reaction? That means the use of a drug which has been in the pharmacopeia for years.

Early this morning you heard reference to severe peripheral neuritis in the patient with tuberculosis. That is the sort of thing we should not have repeated, in the use of any new preparation. I wonder if the guide to proper therapy of the patient is not seen in the way a physician treats his family?

The wife of another physician listened to me with serious intentness last week and smiled afterwards, when I proposed a certain treatment. She said: "Doctor, that is most interesting, what you have said about this drug. My daughter and I don't know there is any medicine besides aspirin."

Dr. Flippin: As Dr. Holloway has mentioned, some drugs have a synergistic action with others. Certainly, the sulfonamides, which are primarily bacteriostatic, can be used to advantage in combination with some of the antibiotics. Not only do they possess a definite synergistic action, but they are useful in controlling the development of resistant organisms, or super-infections.

Certainly, the problem of toxicity is one of the most important factors in the use of these antimicrobial agents. In this connection, it is of interest that the older clinicians seem to be more cautious about their widespread administration than are the younger men who have not had as much experience.

PROBLEMS AFFECTING THE MAL-UNITED AND UN-UNITED FEMORAL SHAFT FRACTURE*

Paul C. Colonna, M. D.,**
Philadelphia, Pa.

The fundamental principles of fracture treatment have not changed over the years, but with the event of the industrial age an increasing number of accidents involving the skeletal system have been occurring and of this number the fracture of the shaft of the femur ranks near the top of the list. The recognition and application of adequate treatment for this fracture becomes of increasing importance to physicians.

We still teach that early care of the fracture, accurate anatomical reduction and adequate protection of the bones while healing is occurring, are the cardinal principles in obtaining bony union. Bony union, however, should not be the only aim. It is essential to recognize that the old definition of a fracture being "a dissolution of bony continuity" com-

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*Read before the Medical Society of Delaware, Rehoboth, September 9, 1952.

**Professor of Orthopaedic Surgery, University of Pennsylvania.

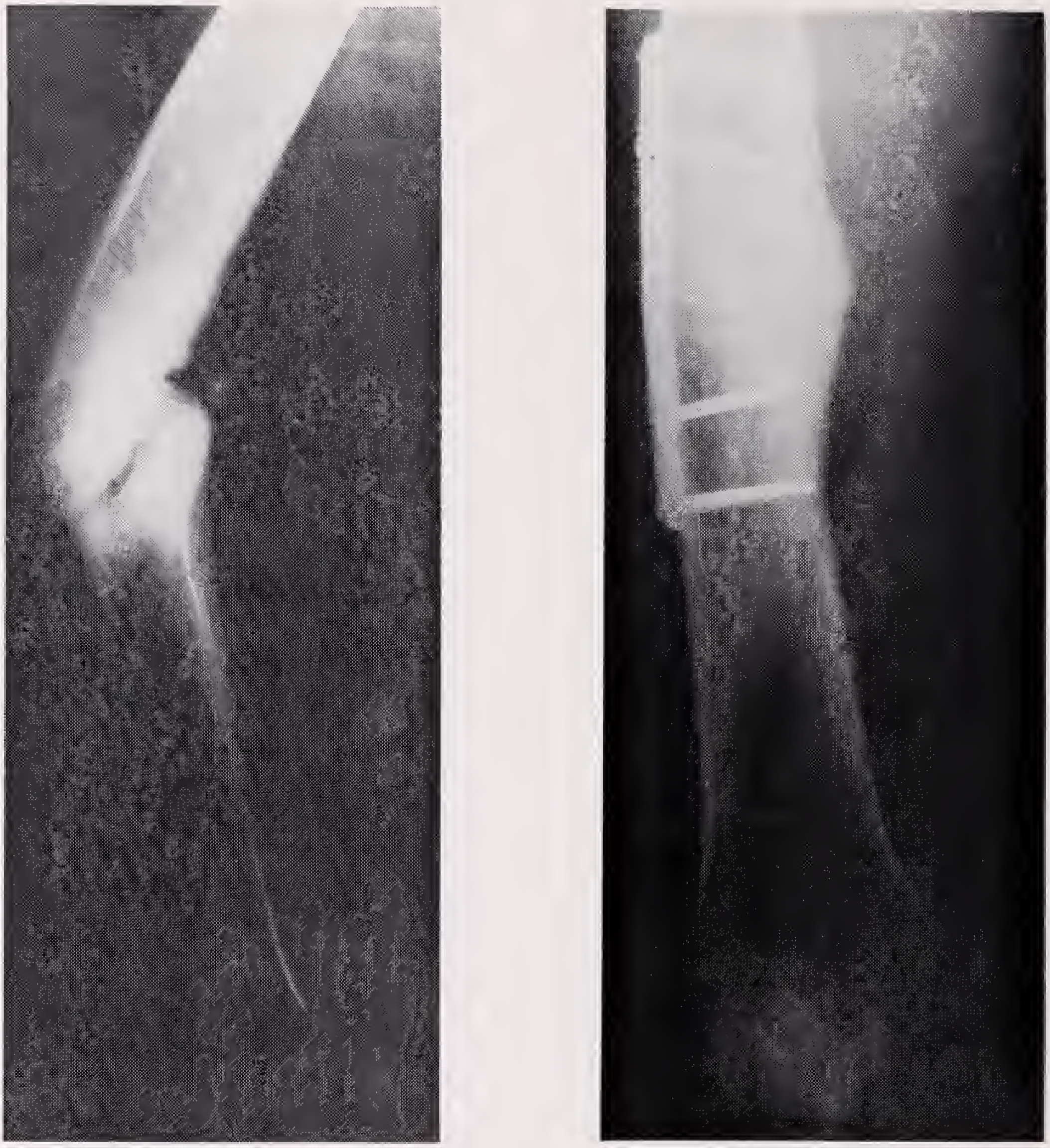
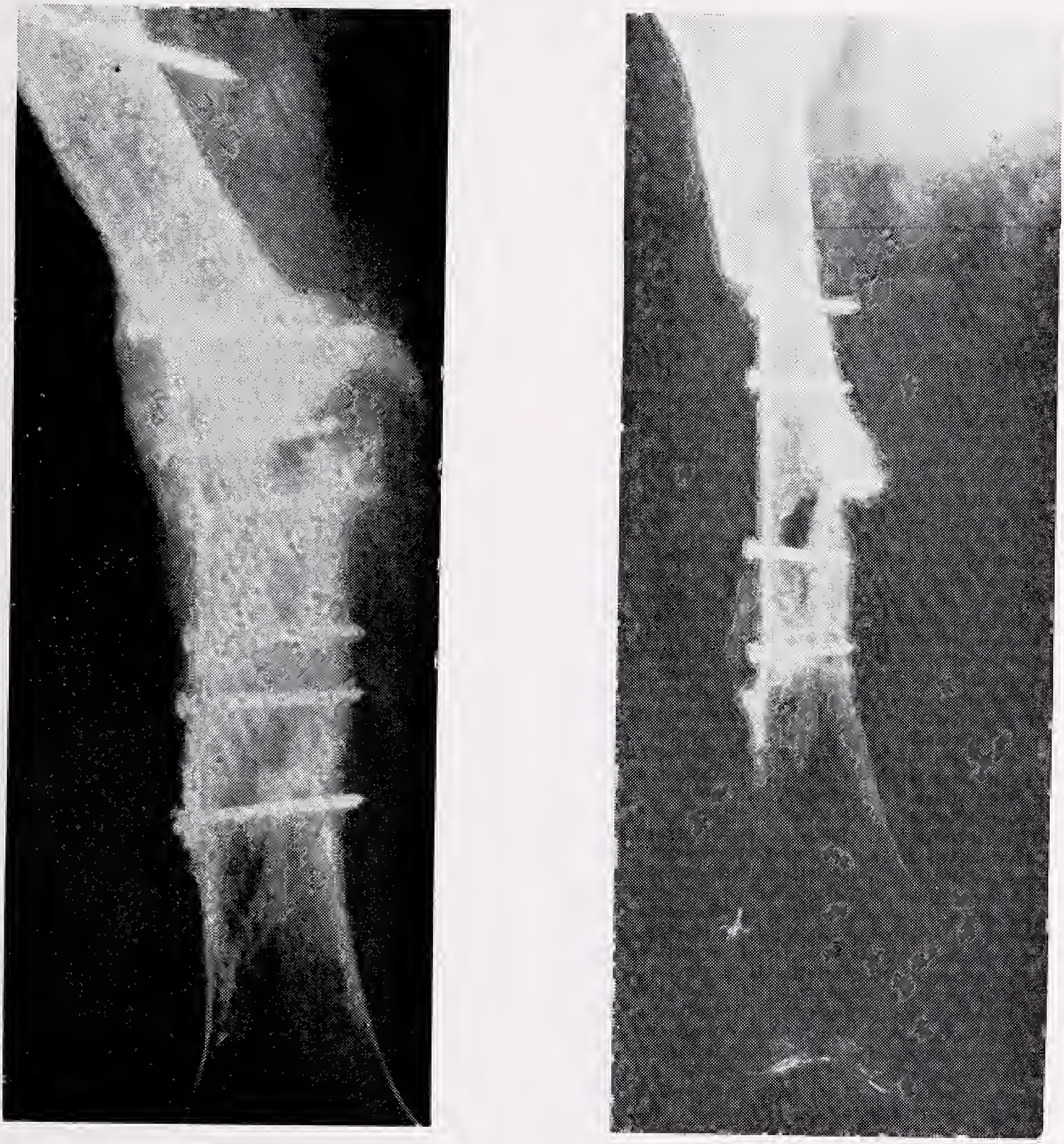

a. b.

Fig. 1—Showing AP and Lat. malunited femoral fracture in (a); and after osteotomy and plate fixation in improved position (b)

pletely ignores damage affecting the soft tissues at the site of a fresh fracture. This means that the nerves, muscles, ligaments and blood vessels may and often are severely damaged and must be properly treated if we are to anticipate early functional recovery. It is the accent on early and carefully supervised rehabilitation of the patient with a fracture that means so much economically and mentally to the patient, his family, and to his employer. Therefore, it is important to stress the obvious and that is, that we can prevent many cases of mal-union and non-union by early adequate treatment of the fresh femoral shaft fracture.

In spite of an increasing improvement in fracture treatment, we still often "leave undone those things we should have done and do those things that we should not have done."

Our remarks regarding the mal-united and un-united femoral shaft fractures will deal with a review of some of the problems we have encountered in the non-infected cases that have occurred on the Orthopaedic Service of the University of Pennsylvania during the past ten years, for they illustrate many



a.

b.

Fig. 2—a. Showing non-union of femur following poor placing of plate and screws through the fracture site.
b. Application of massive tibial graft with union progressing satisfactorily.

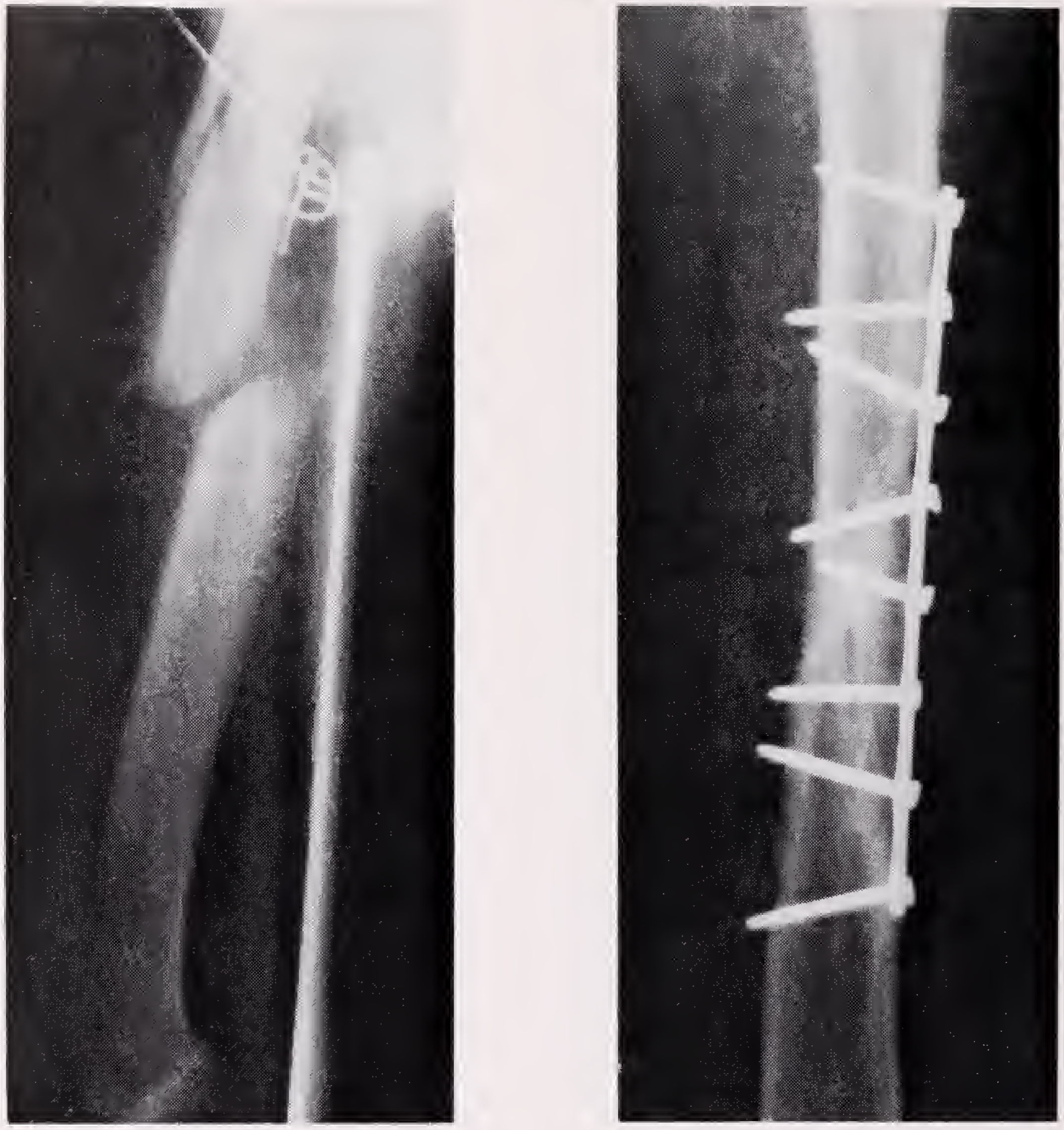
of the problems associated with this subject. The bony structure can be graphically shown by x-ray, always remembering that the soft tissue damage may be of equal or greater value in the restoration of normal function. This damage will be revealed by a careful physical examination but not by the x-ray.

Mal-United Fracture

The problem of the mal-united femoral shaft fracture is, as a rule, a much simpler one to treat than is encountered when non-union is present. Many of the mild degrees of mal-union may be left untreated while in the more severe types the mal-union may throw an added stress and strain on the ligaments about the knee and hip. For this reason, many of these require correction. A well-placed osteotomy will frequently suffice. Figure 1. a-b. Those needing correction in the upper third or middle of the femur can be well immobilized with an intramedullary nail and those in the lower third with a slotted plate—following osteotomy—until union has been re-established.

Un-United Fracture

The cases with frank non-union present the



a. b.

Fig. 3—a Showing non-union of femur.
b. The use of a sliding bone graft with transposition of the graft fragment and immobilization by use of plate.

greatest difficulty and many are due to technical errors in their previous treatment. Some of the more common causes of femoral shaft non-union are:

1) Distraction at the fracture site caused by too heavy skeletal traction or by the interposition of the surrounding soft tissues.

2) Too small a plate has been applied which does not give adequate immobilization to the fractured surfaces.

3) The insertion of screws that were too short to penetrate both cortices.

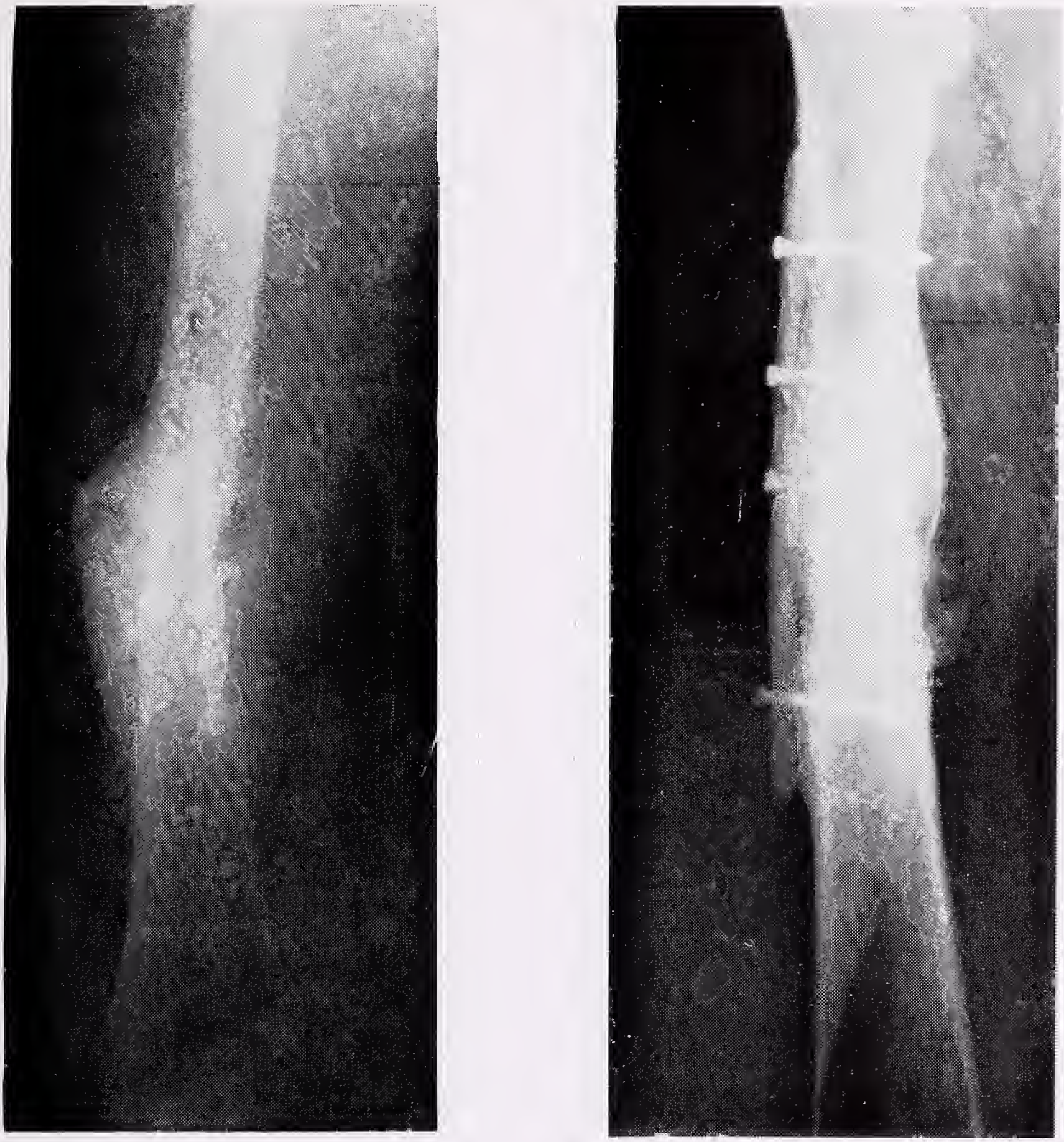
4) Electrolytic action that may have been set up in the tissues when plates or screws are of different metals.

5) Plates breaking under excess stress and strain.

6) The insertion of screws through the fracture site—when the fracture is of the transverse type and the use of Parham bands encircling the bone, causing local aseptic necrosis—are practices to be condemned.

7) Too much hardware used.

In general, the methods employed in the care of the non-infected, un-united femoral shaft fracture should follow the basic prin-



o. b.

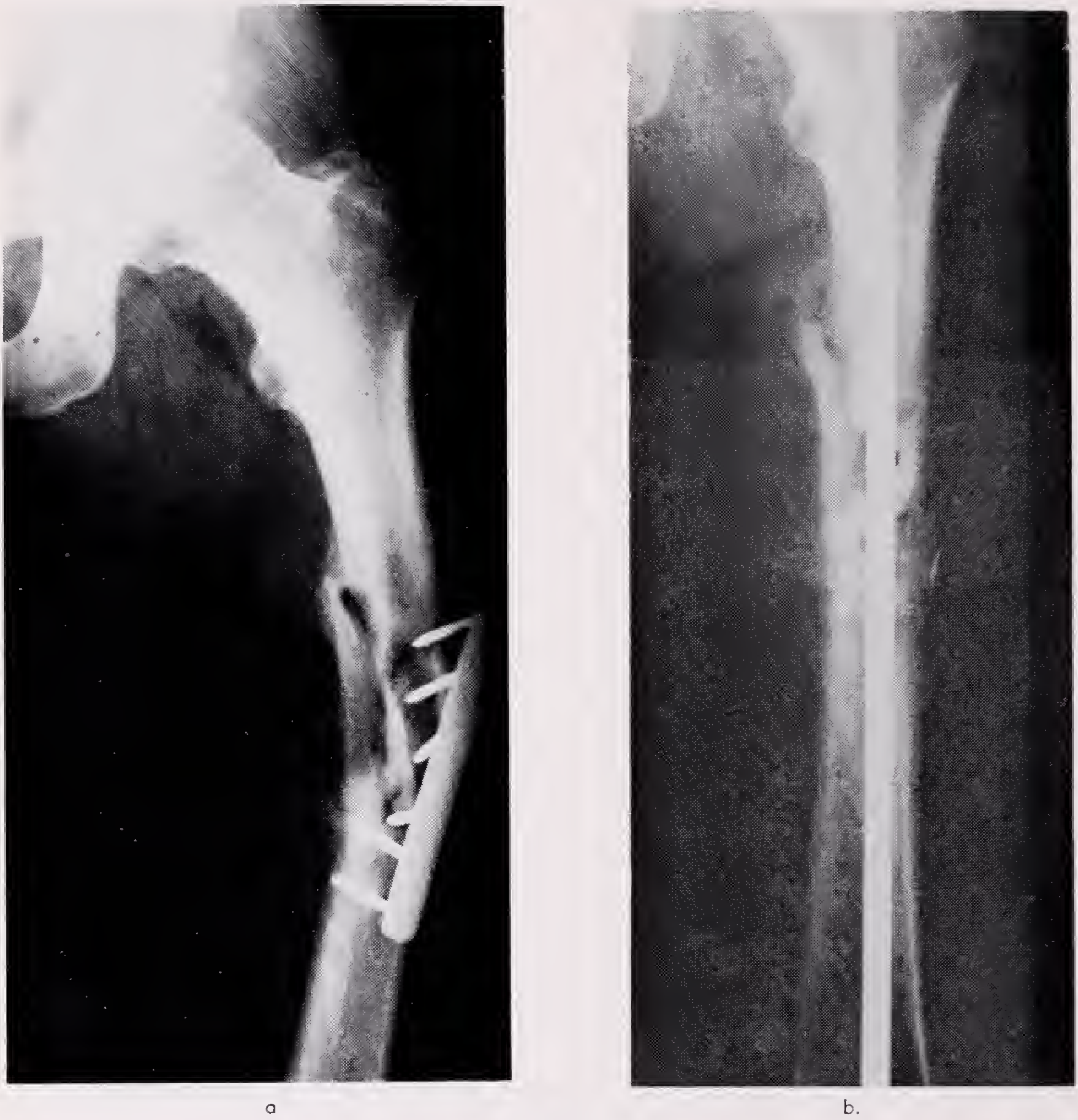
Fig. 4—o. Ununited femoral fracture with psendorthrosis.
b. Following applicotion of massive bone graft and union.

ciples enunciated by Phemister many years ago. In his conception of the healing of bone, close apposition of the fractured surfaces and rigid immobilization were of primary consideration. This, combined with the compression forces introduced by supervised weight bearing stimulates osteogenesis. The compression factor has been recently stressed by Charnley.

Whatever the method of open operation chosen for the individual problem, we feel that union can be hastened and the patient returned earlier to his job as a wage-earner if one employs the use of cancellous bone packed about the site of the old fracture. The cancellous bone we prefer is that from the anterior portion at the crest of the ilium using autogenous rather than heterogeneous bone. Bone bank bone has been used but it is not considered as satisfactory as autogenous bone. Even when cortical bone such as the tibia is necessary for rigidity, we prefer to augment this by the use of cancellous bone packed in and about the site of non-union.

The methods we have employed in the non-union cases have been:

(1) The use of a 4 to 8-hole vitallium or stainless steel plate fixed with screws of a



a b.

Fig. 5—a. Ununited fracture femoral shaft with malposition following plate fixation.
b. Kuntscher rod in place with cancellous bone chips packed about site of fracture and united femoral shaft.

similar type. These penetrating both cortices at right angles to their longitudinal axis.

(2) The use of the massive bone graft, or dual graft, either laid directly on the freshened cortex or dove-tailed into slots made in the cortex assuring rigid immobilization. (Fig. 2 a-b.) We do not feel that complete removal of all the scar tissue between the bone ends is essential to union provided the bone ends have not undergone sclerosis. (Fig. 3 a-b and Fig. 4 a-b.)

(3) The use of the intra-medullary nail of Kuntscher has been reserved only for the fractures occurring in the upper or middle third of the femoral shaft. This type of fixation in carefully selected cases is felt to be ideal for the above sites, for weight bearing provides an intermittent compression force and produces close apposition at the site of the fracture. (Fig. 5.)

Soft Tissue Damage

The degree of soft tissue damage must be estimated at the time of the first examination and appropriate measures planned.

One bugbear to all operative procedures is the formation of fibrosis in the subcutaneous tissues. This is particularly prone to occur when needless stripping of the periosteum and undue roughness of the soft tissues are employed either in the care of the fresh fracture or when further operations become necessary.

These technical errors give rise to fibrosis in the overlying muscle envelope, particularly the quadriceps, as well as causing an unnecessarily large callus formation, all of which become problems in the restoration of function in the knee joint.

A stiff knee and hip can occur from the causes mentioned above or can occur, to a modified degree, in those cases which have remained in plaster for a long period. Immobilization alone will never give rise to bony fixation of the adjacent joint but can be the cause of a troublesome stiffness and result in a prolonged convalescence while function is being restored. For this reason, as well as others mentioned, the intramedullary nail of Kuntscher has seemed an ideal method of treatment whenever the non-union occurs in the upper or middle third of the bone.

KUNTSCHER NAILING

The Kuntscher nailing technique is not without its individual problems and many bizarre complications have been reported. In general, the author prefers to do an open operation at the site of the non-union and after removing the pseudarthrosis if present, insert a guide wire in a retrograde manner into the medullary cavity of the proximal fragment and which exists just under the skin in the gluteal region. Then, after a nick in the skin, a clover-leaf Kuntscher nail, of adequate length and adequate diameter, is driven along the guide wire to the site of fracture. The fragments are placed in anatomical position and the nail then driven down into the distal fragment as far as the condyles of the femur. This assures exact alignment and if firmly imbedded into the condylar region, prevents longitudinal rotation of the bone. No plaster is post-operatively necessary and the patient can, after the first few weeks, begin moving the hip and knee and by the end of the 4th week be up on crutches with some weight bearing. It is again stressed that pre-operatively an estimation of the length of nail needed as well as its diameter is most essential for success. Occasionally the medullary cavity may need to be reamed out a few inches below and above the fracture in order to have the nail set accurately and securely. (Fig. 6 a-b.) Another small but important point in the technique is to manually impact the femur at the point of non-union by pounding on the patient's heel and visually confirming the fact that the bones are in close opposition before the thigh wound is closed. If the nail is of the proper length, it will only project about one-half inch above the upper portion of the femoral shaft and will be well placed about one-half inch from the femoral articular surface at the knee joint.

This brief review stressing some of the problems of femoral shaft fractures should not close without an acknowledgement of the great boon that the antibiotics have been to the surgeon. He operates today with great confidence that aseptic precautions have been carefully observed by his assistants and himself and that the area of operation has been properly prepared. All this today is routine and careful surgery is presupposed. But in bone surgey especially, infection delays definitive teatment tremendously and while we do not advocate the employment of chemotherapy and the antibiotics routinely in clean surgery, its availability in these cases requiring major bone surgery gives additional security to the patient and to the surgeon.

SUMMARY

1) The principles underlying the treatment of fresh femoral shaft fractures have been stressed in order to minimize the development of mal-union and non-union.

2) Some of the frequent causes of non-union of the femoral shaft have been enumerated.

3) Methods which have proven satisfactory in the treatment of mal-unions and non-unions are briefly mentioned and illustrated by roentgenograms.

4) The indications and technical difficulties involved in the use of the Kuntscher nail have been reviewed briefly.

34th and Spruce Streets

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Discussion

Dr. I. M. Flinn (Wilmington): Whenever Dr. Colonna delivers a paper there is little left to be said. He is quite thorough, quite conservative, and extremely modest.

In the femur nature literally thirsts for union. Only when bony contact is incomplete or interrupted is there difficulty in obtaining it.

Dr. Colonna has mentioned soft tissue damage. Frequently, I must say, the soft tissue damage is increased by ill-chosen incisions. Whenever possible one should stay away from the quadriceps mechanism. Incisions along the lower aspects of the thigh in the lateral gutter are probably the best. Frequently it becomes necessary after a fracture is united to perform another operation in order to release the quadriceps mechanism.

There are plenty of dangers involved in the use of the intramedullary nail. At a recent symposium the conclusion was that some 35% of the cases have some sort of complication as a result, so that use of the nail is something that is not to be considered lightly. We, ourselves, have done four of five of these operations.

The first case we did I feel we should not have used it: it was a case of probably poor judgment. When we operated we found no infection, but the tissues didn't look just right. We inserted the nail—and two years later the leg had to be amputated. We have had only 25% complications so far.

Dr. D. J. King (Wilmington): If I may be permitted to have a couple of minutes. I would like to show a case that demonstrates many of the points Dr. Colonna has mentioned. If I may have the first slide, please.

Slide: This is a case of a white, thirty-four year-old male who suffered many injuries when a tree fell upon him. Amongst these injuries was a fractured femur. This occurred in May, 1951. A couple of days later the surgeon elected to do an open reduction.

You can see here that the fractured site covered by the plate—this doesn't demonstrate it too well—but screw No. 2 is interposed between the fractured ends. It is not well demonstrated here. And the screws engage one cortex—and this picture presented itself shortly after the operation. For that reason the surgeon removed the plate and replated it. However, osteolytic changes were evident and the fracture was not maintained.

On February, 1952, nine months later, he was referred as a case of non-union.

Slide: At which time the hardware was removed and an open reduction was performed. Before going on, I might add that he had a stiff knee with just a trace of motion. The quadriceps muscles were fibrosed, and after the operation a light manipulation of his knee was performed.

Slide: In June of '52, almost four months later, the patient had been up walking around with crutches in a limited manner when suddenly he developed pain. He thought he was getting a swelling. We immediately had him brought to the hospital—and, unfortunately, this slide doesn't show the state of affairs.

Slide: But the nail had migrated, over a very short period of time. As a matter of fact, it was hours. And here, instead of it ending a half inch above here, we now find it is five and a half inches up here. This was reinserted and a few days later the man was back, walking around, and we hope that he will develop union. Perhaps one mistake in judgment was the fact that I didn't add the iliac bone, and I feel if I had, perhaps we would have had union sooner. I don't believe that union is complete.

Dr. W. L. Bailey (Wilmington): I don't want to discuss that paper; it is too good, but I want to ask his procedure when he has two fractures—as to the length of the nail—or how he handles that situation.

Dr. Colonna: Before I take up Dr. Bailey's "Sixty-four Dollar Question," I might tell you it wasn't very difficult to come down because Dr. King met me at the train and brought me all the way. I had a good lunch, so I don't think I deserve a thing except congratulations at being invited here.

The interesting case he has just shown I think is developing non-union, all right, but I think it is interesting to surmise why the pin should have gravitated or backtracked, as it were. That is most unusual. Whether it is because it was not firmly imbedded in cancellus bone just above the knee joint or whether the factors of walking and use of it in some way may have loosened it, I am sure

I don't know. I have not seen that exact complication to such a degree.

In Hugh Smith's excellent and comprehensive review of a large number with femoral fractures treated by the rod, he tells an amusing story of one man who had a Kuntscher nailing. The nail slipped down through the greater trochanter region into the femoral medullary cavity, so that when the man stood up there would be a "plunk" and when he raised his leg there would be another "plink," as the rod slipped back up into the medullary cavity.

No two cases are exactly alike, but I do think with selected cases, selected sites, familiarity with ordinary bone and joint technique, the Kunschner nail is a decided advance over the previous methods that we have had for the treatment of most fresh mal-union and non-union upper 1/3 femoral shaft fractures.

The complication of the stiff knee due to the quadraceps fibrosis is a very hard one to solve, and my own experience in releasing the quadriceps muscle from the adherent fibrosis has not been good. I have been very discouraged about the various plastic operations on the knee and various methods of getting mobility in a knee that is stiff through fibrosis of the quadriceps.

Now, the question that Dr. Bailey poses regarding the method in treating two fractures of the femoral shaft: If he is meaning the fresh fracture in the upper third, I still think they should be treated by a rod, and I think you would have to estimate to some degree—but I don't believe it would be too difficult to estimate—the length of the femur by taking scanograms. If you are dealing with a non-union, where you may have to sacrifice some bone because of the underlying sclerosis or scarring of the bone, that is a little more difficult, and one might have to cut off a protruding nail with a hacksaw to obtain the proper length of nail.

There is a nail on the market now, which I have never used, which can be added to or subtracted from. One of the surgical houses has put it out and you can screw in another length to it.

Thank you, very much, for your invitation and kind reception.

LUETIC OSTEOMYELITIS

A Case Report

Walter L. Bailey, M. D.,*
Wilmington, Del.

A. W., No. 183390, Delaware Hospital. Admission 8-4-51. Discharged 8-20-51. Admitted with three weeks' old complaint of pain and swelling left lower leg and foot. Pain kept patient awake at night. Past medical and surgical history was negative. Denied venereal disease. Occupation, truck-driver.

Physical Examination. Swelling left lower leg and foot, no increase in local temperature. Markedly tender along crest of tibia, lower half.

X-ray Examination. (Fig. 1) Destructive lesion lower half of tibia with marked periosteal proliferation.

Laboratory Examination. 8-6-51. Hgb. 92 per cent, 14.4 gms; W.B.C. 6700, polys 62, poly non-seg. 1, lymphocytes 32, monocytes 4, eosinophiles 1. Phosph. 4.3; calcium 11.6; Alk. phosphatose 1.0, Urinalysis, negative. Bld. serology: 8-6-51—Kolmer-Wassermann 4-plus; Kahn Standard 4-plus; Mazzini 3-plus.

Hospital Course. Lesion biopsied. No purulent material encountered. The periosteum markedly thickened and stripped with difficulty. Cortical bone softened and medullary canal filled with grayish white material of firm consistency.

Pathological Report. Osteomyelitis, non-specific, compatible with luetic osteomyelitis. Culture of wound negative. Patient received total of 6,000,000 units of penicillin during hospital stay, from which he developed a marked urticarial reaction. Incision healed per primum. Repeat Wassermann 8-17-51 was 4-plus.

Further Course. Referred to Dr. John H. Stokes, Syphilologist, University of Pennsylvania, for more complete work-up and suggestion as to treatment of persistent positive serology. Cardio-vascular system found to be negative, skull negative for osseous changes, but serological study of spinal fluid indicated probable meningo-vascular syphilis. Because of former reaction to penicillin, use of hypoallerginic penicillin, together with antihistamimics, suggested by Dr. Stokes. X-rays four months' postoperative are shown in Fig. 2.

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*Associate in Orthopedics, Delaware Hospital.

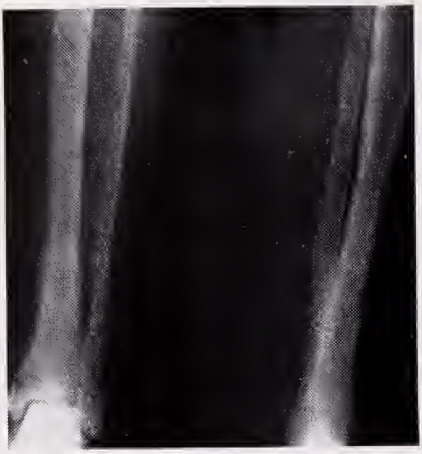

Fig. 1

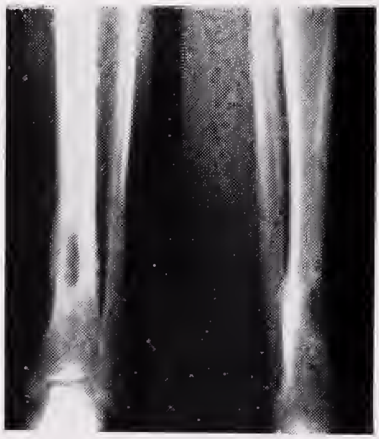

Fig. 2

Brief Discussion

Luetic osteomyelitis is more often acquired than congenital and occurs in 0.5 to 0.7 per cent of all cases of acquired syphilis. Bones affected in order of their frequency are tibia, clavicle, skull, fibula, femur, humerus, ribs, ulna, and scapula.[2]

Diagnosis of this condition is not easy. Clinical symtoms are generally referable to the part involved. Roentgenographic findings are confusing and take many forms: osteitis, periostitis, osteoperiostitis, osteomyelitis, gummatous formation, forms of arthritis, and arthropathies.[2]

For the above reason one must consider or eliminate pyogenic osteomyelitis, tuberculous osteomyelitis, fungus infection, primary sarcoma, and metastatic malignancy.[3] The early lesions can closely resemble multiple myeloma.[5] Final diagnosis rests on adequate biopsy and free use of laboratory facilities.[2]

Treatment of luetic osteomyelitis, once diagnosis is established, is preferably by penicillin. In the past bismuth muscularly yielded excellent results.[1, 6] Syphilis is a systemic disease, osseous involvement being only a local manifestation. Definitive treatment, therefore, should be under the direction of a competent syphilologist.

Note—The author wishes to express his appreciation to Dr. John H. Stokes for his valuable assistance in this case.

501 Delaware Avenue.

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American College of Allergists

The annual conclave of The American College of Allergists will be held this year at the Conrad Hilton Hotel in Chicago April 24 to April 29.

The first four days will be devoted to instruction under the tutelage of recognized authorities and the last three to a discussion and reporting of recent advances in the field of allergy by the investigators themselves. For detailed information write The American College of Allergists, La Salle Medical Building, Minneapolis 2, Minnesota.

Postgraduate Institute

April 28—May 1, 1953, Bellevue-Stratford Hotel, Philadelphia. Conducted by The Philadelphia County Medical Society. Technical Exhibits. Thomas M. Durant, M.D., Director. Direct all Inquiries to 301 South 21st Street, Philadelphia 3, Penna. Registration Fee Ten Dollars. (Non-Members of Society.) A Detailed Program Will Be Mailed Out in the Near Future. We Hope You Will Be Present.

Editorials

DELAWARE STATE MEDICAL JOURNAL

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Vol. 25 March, 1953 No. 3

March Is Red Cross Month

Every month in the year thousands of people in need or distress reach out to the Red Cross for the help they must have, help that comes from the generous efforts and support of housewives, businessmen, industrial workers, school children, professional workers — your nextdoor neighbors — and countless others who serve their fellow man through the Red Cross.

In a time of tension and cynicism it is well to be reminded of the inherent goodness of people, to call attention to their constant voluntary efforts to make life a little better for the men and women in the armed forces, for hospitalized veterans, for disaster sufferers, and for those in need in other lands.

Although the heart and hands of the Red Cross are provided by hundreds of thousands of volunteers, money is also needed to collect blood; to provide financial assistance for servicemen, veterans, and their dependents; to furnish emergency aid and rehabilitation to disaster victims—services that can be provided only through the voluntary financial support of millions of Americans.

Every March Red Cross volunteers turn to their neighbors and ask help in answering the call of those in need. Let us respond generously to this appeal so that we can answer the call of humanity through our Red Cross.

Where Does the Money Go?

A sheet of 1953 Easter Seals came to us in the mail last week.

We've been contributing to this annual drive to "help crippled children" for several years, but when the '53 Seals came we began to think. Just where did our money go?

Inquiry brought us a good bit of interesting information. Here's something of what we learned:

This year marks the 20th year that Easter Seals have been reaching the public, sent by the National Society for Crippled Children and Adults and its affiliated societies nationwide in an effort to help the handicapped. The organization is made up of 2,000 chapters located in every state, and the District of Columbia, Alaska, Hawaii, and Puerto Rico. Easter Seals are mailed to us by the Delaware Society for Crippled Children and Adults whose office is located at 1002 Washington Street, Wilmington, Delaware.

Most of the funds we contribute — 91.7% of the total amount — remain right here in Delaware, financing services of all kinds for the crippled children and adults in our midst. Last year the organization directly helped more than 287 of these persons through its year-round program of case-finding, direct services, education, and recreation. It seeks out crippled persons who need care not given by other agencies, public or private. Any one of us can refer a crippled child or adult to the Easter Seal Society for help.

Nationally, we learned Easter Seals finance education of the public, of parents of crippled, and of professional workers for furthering acceptance and rehabilitation of the handicapped. They also support research into the causes of crippling conditions, and direct services for aiding the development of individual state programs.

With this information, we concluded that it is important, from both the economical and the humanitarian standpoint, to help the handicapped become independent, happy and useful citizens who can earn their own way. We slipped our contribution to Easter Seals in the return envelope — more this year to meet rising costs. We hope you'll do the same! Easter — April 5th — is almost here.

Correction Due

The letter-head of the New Castle County Medical Society, which goes to eighty per cent of the Medical Society of Delaware, contains an omission which should be noted. At the top of the personnel column, under "Board of Directors", appear only three names. The By-Laws of the NCCMS (Page 24, Section 8, Directors) plainly state: "The Board of Directors shall consist of three members, one of whom shall be elected each year to serve for three years, *plus the President, President-Elect, Secretary, and Treasurer, Ex officio.*" (*The italics are ours.*)

When this Board of Directors meets there should be present seven members—not a mere three.

MISCELLANEOUS

Illinois Doctors Contribute

A $59,570 contribution to help alleviate the financial difficulties of the nation's medical schools has been received by the American Medical Foundation, it was announced recently by Hiram W. Jones, Chicago, executive secretary of the foundation.

The donation, made by 2,966 Illinois physicians through the Illinois State Medical Society, included a $400 contribution by the 20 members of the Effingham County Medical Society and an additional $250 from the society itself. A tragic fire at St. Anthony's Hospital in Effingham, early in 1949, killed several persons.

Mr. Jones pointed out that already this year the foundation has received more than 3,600 contributions, totaling more than $594,000, adding:

"Our 1953 goal is $2,000,000. This is proof-positive that the medical profession has found a solution to the serious financial problems that beset the nation's medical schools."

The foundation has raised $2,246,401 since it began operation in 1951 to stimulate voluntary contributions from members of the medical profession for support of medical schools. In conjunction with the National Fund for Medical Education, the A.M.E.F. has distributed grants totaling $2,819,901 to the country's 79 approved medical schools for their unrestricted use.

BY-LAWS
MEDICAL SOCIETY of DELAWARE
Amendments Adopted

The following Amendments to the By-Laws of the Medical Society of Delaware were adopted by the House of Delegates on October 8, 1951. Each member should make these notations in his copy of the By-Laws, or paste this clipping therein.

Item I

Page 10, Line 6 and Line 16, Article 3, Section 6 — Dues and Assessments. Change "April 1" to "April 30".

Item II

Page 18, Line 19, Section 9 — Transfers. Change "one year" to "six months". Section 10 Bottom Line—Transfer Cards. Change "Twelve months" to "six months".

Item III

Page 10, New Amendment to Article 3, Section 6 — Dues and Assessments. Active members of this Society shall be excused from payment of annual dues and special assessments of this Society as long as they are on active duty with the Armed Forces of the United States. Said members shall pay the dues for the year in which they are inducted into service, but shall not pay the dues for the year in which they are mustered out.

Item IV

Page 10, New Amendment to Article 3, Section 6 — Dues and Assessments. Active members of this Society who retire from practice before the age of seventy and who derive no part of their income from the practice of medicine shall be excused from the payment of annual dues or special assessments of this Society, provided they are similarly excused from the payment of dues and assessments of their component county society. (Adopted September 8, 1952.)

BOOK REVIEWS

Side Effects of Drugs. By L. Meyler. Translated by P. H. Vuijsje and W. Mulhall Corbet. Pp. 268. Cloth, Price, $5.50. New York: Elsevier Publishing Company, 1952.

This book has a good stated reason for being written—"Diagnoses first, Treatment afterward," but the author has destroyed the usefulness of the subject by overemphasizing the dangerous symptoms of overdosage. As the author warns, the physician must show extreme care in prescribing any drug, new or old. He outlines all of the untoward symptoms, signs, and sequelae that may occur without giving the dosage which has caused the toxic side effects and without suggesting the safe dosage or what precautions should be taken to avoid such reactions.

The information given with each drug is apparently authentic, but anyone reading of all the damaging effects of such generally used drugs as aspirin, penicillin, insulin, curare, and ACTH will never venture to use them on the basis of information presented here.

Most of the drugs, antibiotics, hormones, and vitamins listed are used daily by the busy practitioner and it is up to him to know the safe dose range before toxic symptoms develop. This information is readily available in any standard book in pharmacology.

A long list of references, mostly European, is given at the end of each chapter but the author and title are not given, only the journal and pages in which they appeared.

We fail to see the usefulness of this book in its present form.

Pharmacology In Clinical Practice. By Harry Beckman, M.D., Director, Department of Pharmacology, Marquette University. Pp. 839, with 152 figures. Cloth. Price, $12.50. Philadelphia: W. B. Saunders Company, 1952.

Dr. Beckman's book is unique in that it is not merely a textbook of technical pharmacology but also a book of clinical value because the drugs are arranged according to their therapeutic effects. For example, drugs are classified under Allergy, Anesthesiology, Cardiology, Dentistry, Dermatology, Endocrinology, etc. The clinical effects, nature of action, absorption and excretion, method of administration, toxicity, and other valuable information based on the author's vast teaching experience are clearly outlined. The discussion of each subject is brief and clear.

The contents are divided into two sections. Section I, Clinical Use of Drugs, covers 714 pages. Here the pharmacologic aspects of all drugs used in daily problems which arise in medicine and dentistry are discussed. Section II supplies a few chemical and physical facts about the drugs discussed in Section I and lists some representative commercial preparations of each so that the reader would know the forms in which they are available.

This is an excellent book and is highly recommended for the physician and dentist who prescribes. It will also be found indispensable by the medical, dental, and pharmacology students who must be kept constantly informed of the uses of the numerous drugs and antibiotics.

A complete index and cross-index adds to the rapid accessibility of the information. Suggested excursions into the literature are listed at the end of each part.

Sex After Forty. By S. A. Lewin, M.D. and John Gilmore, Ph. D. Pp. 200, Cloth. Price, $3.50. New York: Medical Research Press, 1952.

This interesting book discusses in general terms the sex physiology of the male and female as it refers to those over forty years of age. The seventeen chapters emphasize the proper hygiene anl attitudes toward married life and attempt to minimize the fears and worries one associates with the menopause and the male climacteric.

Actual case histories show how patients are rehabilitated through the proper medical supervision and at times by means of endocrine and hormone therapy.

The text includes an Atlas of Male and Female Pelvic Anatomy, in color, and about 100 drawings, photographs, and photomiographs.

This book is written in easily understood language and is highly recommended for teachers, social workers, and lay persons who are near or over forty years of age. The book contains a glossary of medical terminology which will be found very helpful by the lay reader.

Surgical Practice of the Lahey Clinic. By members of the staff of Lahey Clinic, Boston. Pp. 1014, with 784 illustrations on 509 figures. Cloth. Price, $15.00. Philadelphia: W. B. Saunders Company, 1951.

This new volume from the Lahey Clinic, coming just ten years after the first volume, presents procedures which by repetition have become standardized in that clinic. Only one procedure is presented for each type of case. The book is devoted mainly to operating technique, but includes also diagnosis, preoperative and postoperative care, choice of anesthesia, and an evaluation of end-results.

Perhaps the outstanding chapter is the one by Dr. Lahey himself on Technic of Subtotal Thyroidectomy, which covers 28,000 cases. It would be well for every neophyte in goitre surgery to read this chapter.

The chapter subjects are: thyroid gland and neck; esophagus, lungs, and heart; stomach and duodenum; small intestine; sigmoid and rectom; biliary tract; spleen, adrenal gland, and pancreas; breast; pelvis; bones and joints; brain, spinal cord, and nerves; anesthesia; and miscellaneous.

The illustrations are excellent and the index is complete.

Every experienced surgeon needs this volume to complete his modern library; the inexperienced surgeon can read it with profit to himself and to his patient.

The Literature On Streptomycin—1944-1952. By Selman A. Waksman. Cloth. Pp. 553. Price, $5.00. New Brunswick, New Jersey. Rutgers University Press, 1952.

This is a complete reference list of actinomycetes, antagonistic properties, streptothricin and streptomycin. 5550 streptomycin publications are covered up to 1952. The author index includes cross references to all the authors of a given paper.

In view of the rapidly accumulating literature on streptomycin, annual supplements, rather than new editions of this volume, are planned. In addition, digests dealing with various uses of streptomycin will be published from time to time.

Investigators who are interested in streptomycin will find this book a useful reference.

Clinical Instruction and Its Integration in the Curriculum. By Deborah MacLurg Jensen, R. N., Instructor in Nursing Education and Sociology, University of Missouri. Third Edition. Pp. 542. Cloth. Price, $5.75. St. Louis: C. V. Mosby Company, 1952.

This is a well outlined text book on nursing education. The author succeeds in combining theory and practice, emphasizing the value of clinical instruction. An attempt is made to prepare students to use all of their knowledge and skill in solving the problems facing them as they care for patients in institutions or in homes.

The book is divided into six sections, consisting of twenty-three chapters. The principles of planning, learning, teaching, and guidance are carefully outlined. Faculty organization and preparation is discussed. The last section (VI) outlines in detail integrated programs of clinical instruction in medical, surgical, pediatric, obstetric, and psychiatric nursing. An annotated bibliography is given at the end of each section.

The appendix gives illustrations of records for student nurses and sources for teaching aid. A subject index adds to the usefulness of the book.

Nursing schools and student and graduate nurses will find this a very valuable book.

Ward Administration. By Deborah MacLurg Jensen, R. N., M. A., Instructor in Nursing Education and Sociology, University of Missouri. Illustrated. Pp. 335. Cloth. Price, $4.00. St. Louis: C. V. Mosby Company, 1952.

This book deals principally with the administrative aspects of the head nurse in a general hospital, small or large. The modern qualifications and functions of the head nurse are well outlined. The material is well written and excellently organized. The book is divided into six sections which embody twenty-two chapters. The author outlines thoroughly and in detail the fundamental principles of administration, supervision, and teaching.

The appendix gives a sample ward manual or administrative guide, in which instructions are written governing all the ward activities and personnel.

An annotated bibliography is given at the end of each section of the book.

Nursing schools and nurses looking forward to advancement in hospital ward administration will find this book invaluable.

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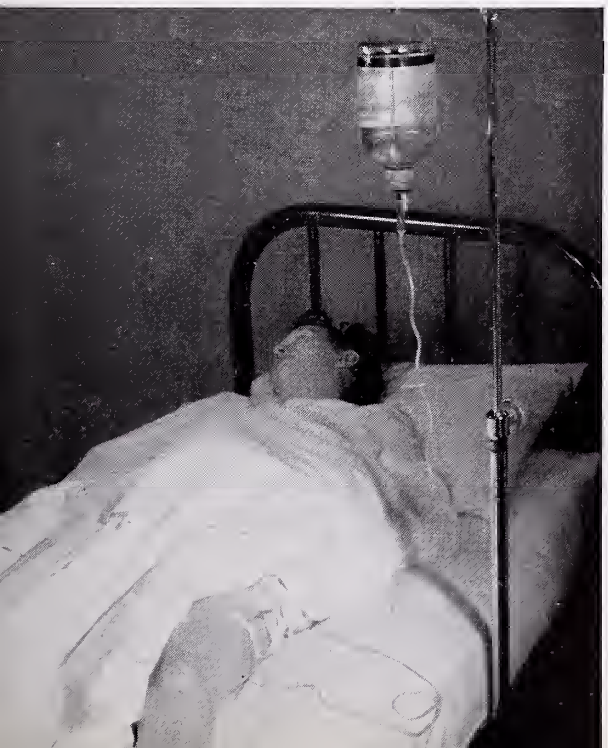

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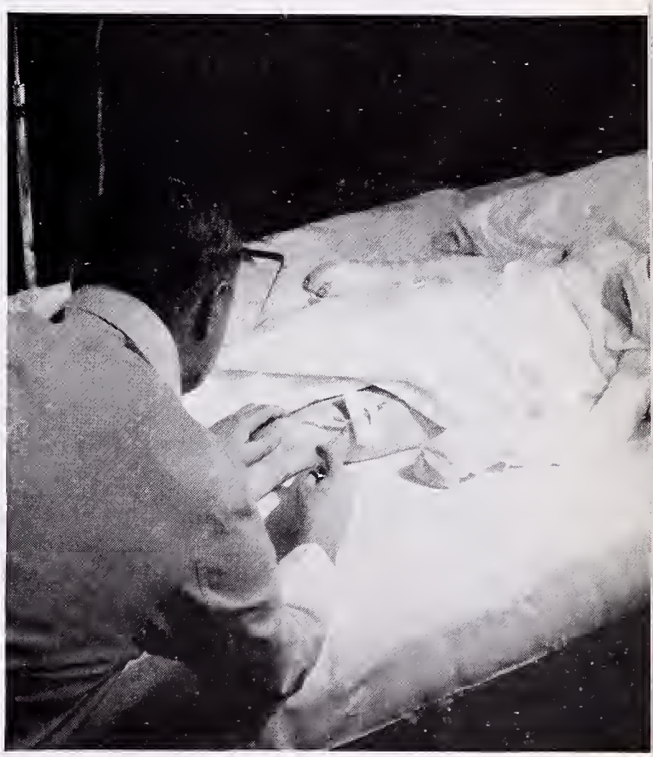

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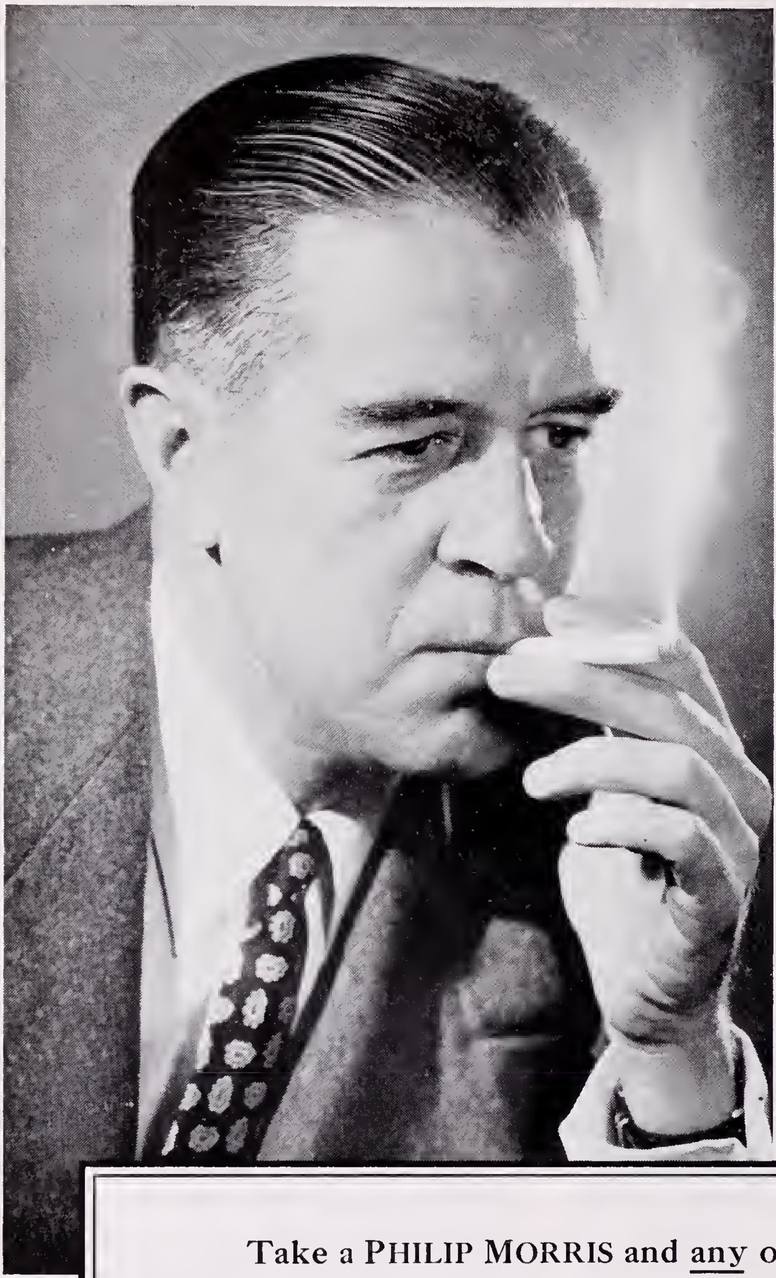
1. Hechter, O.; Dopkeen, S. K., and Yudell, M. H.: The Clinical Use of Hyaluronidase in Hypodermoclysis, J. Pediat. 30:645 (June) 1947.
2. Schwartzman, J.; Henderson, A. T., and King, W. E.: Hyaluronidase in Fluid Administration: A Preliminary Report, J. Pediat. 33:267 (Sept.) 1948.



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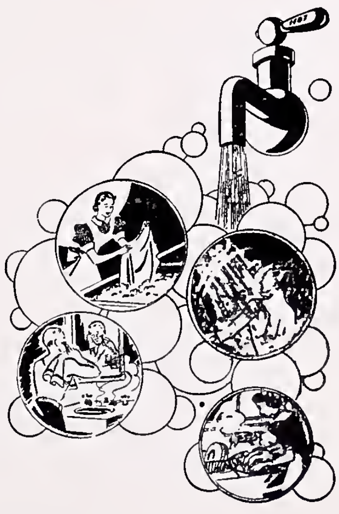

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1. Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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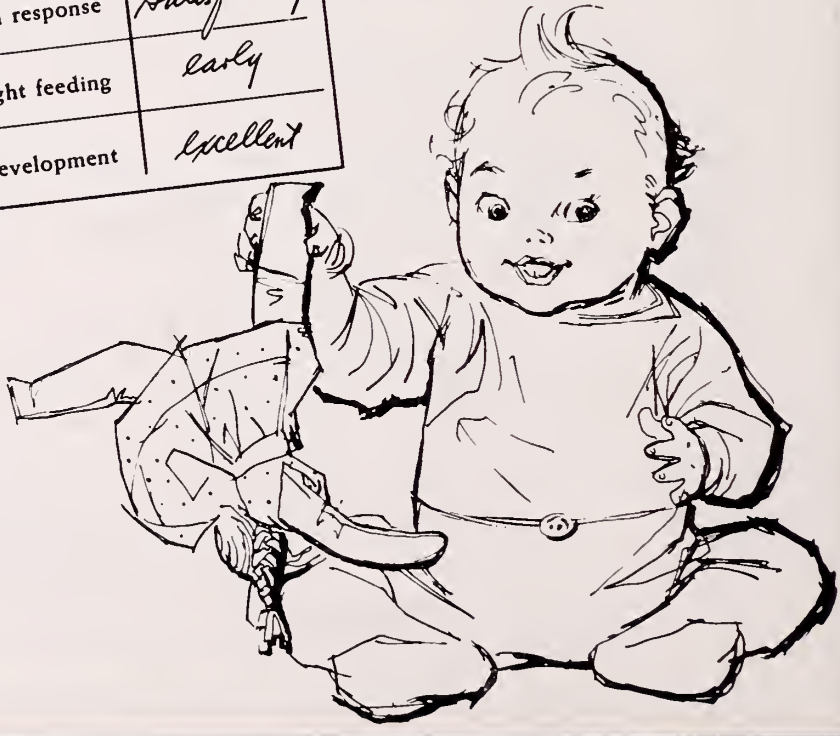

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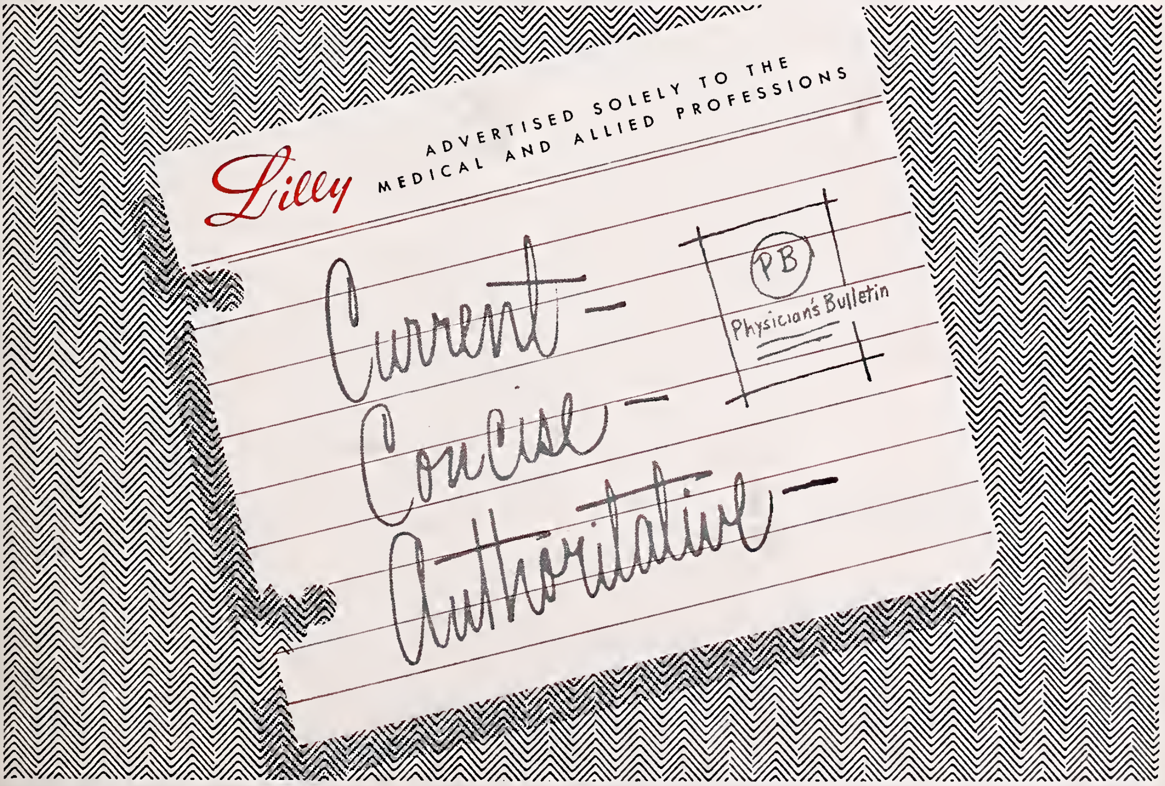

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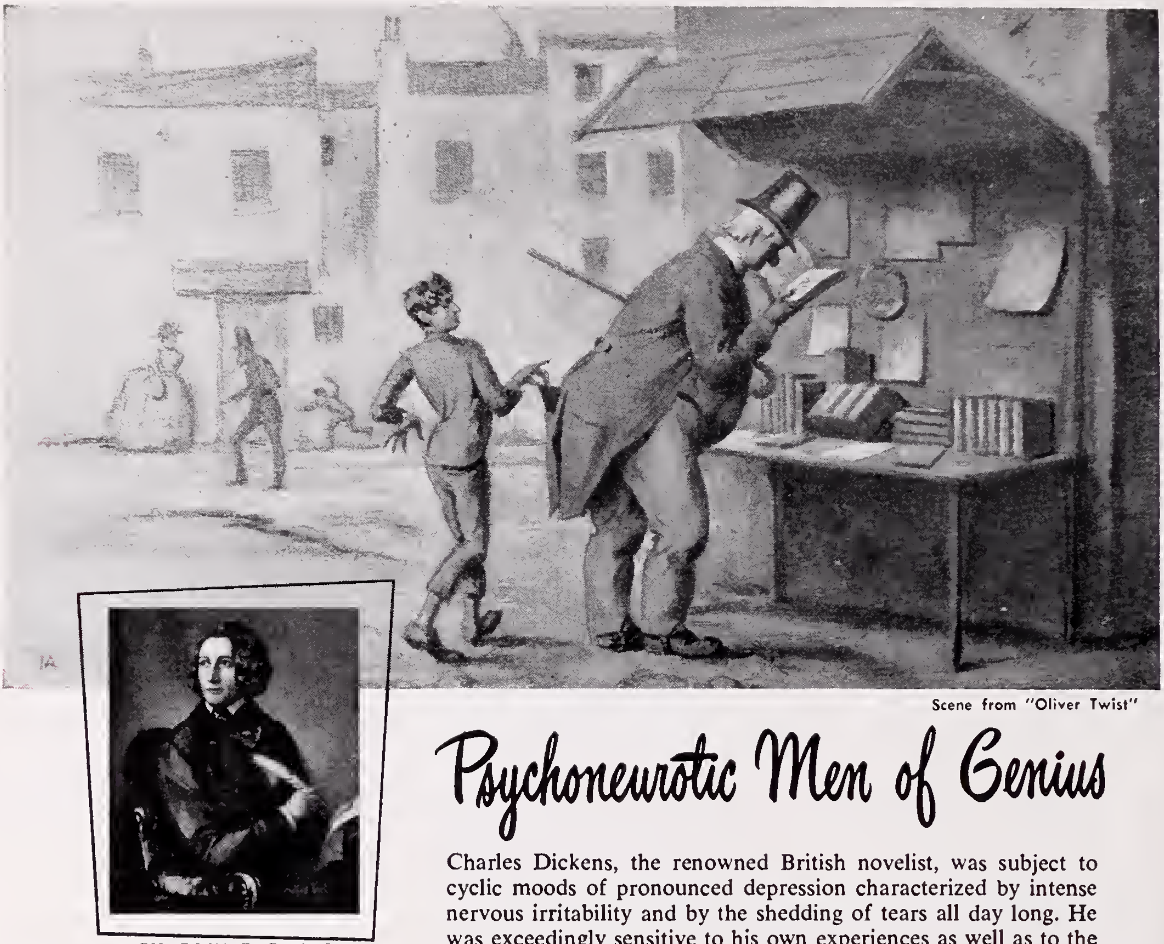

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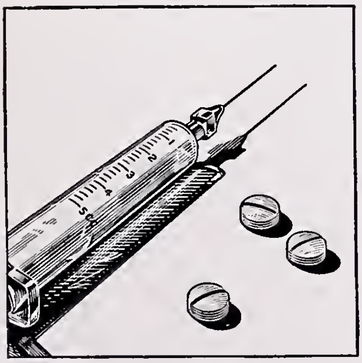

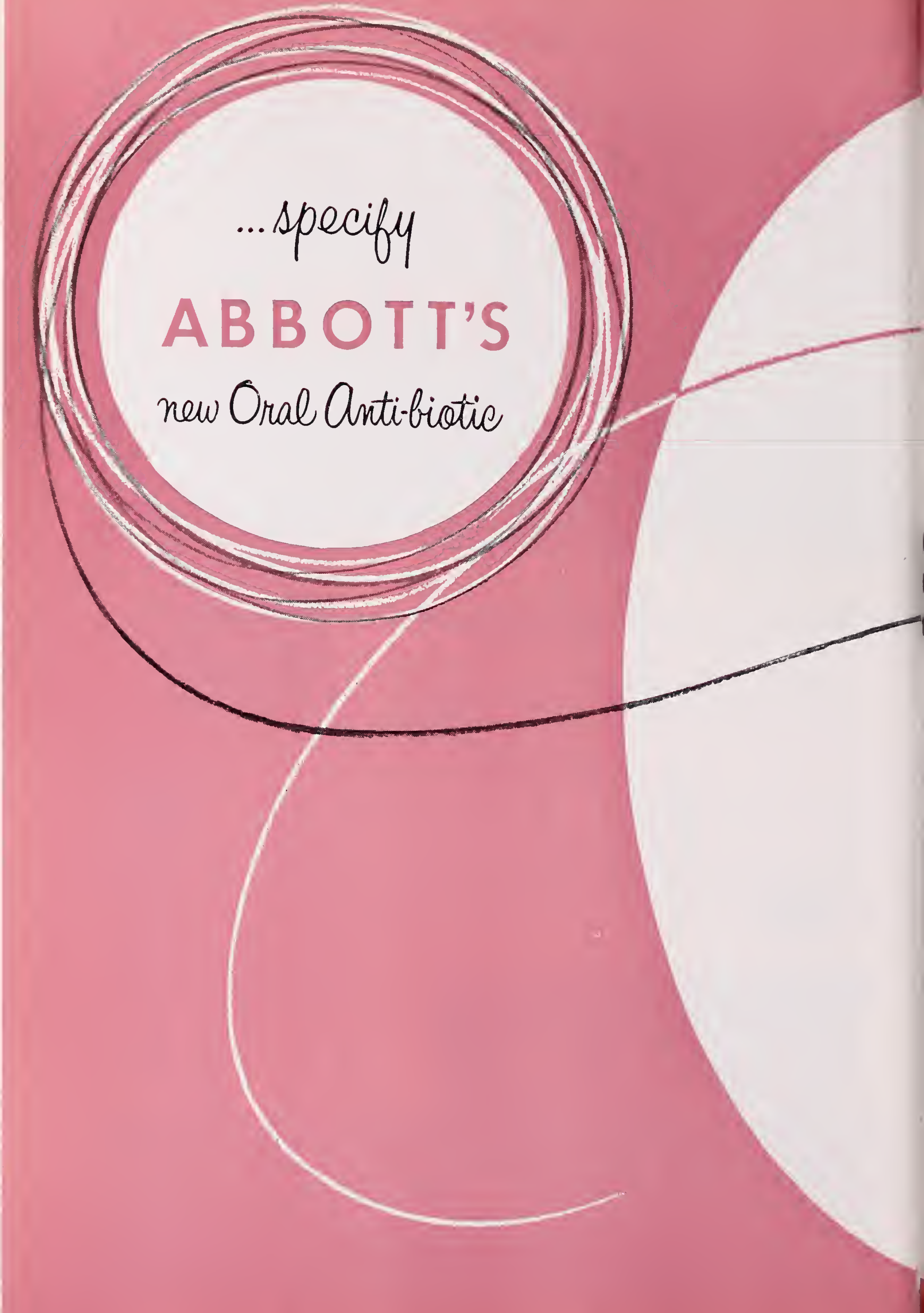

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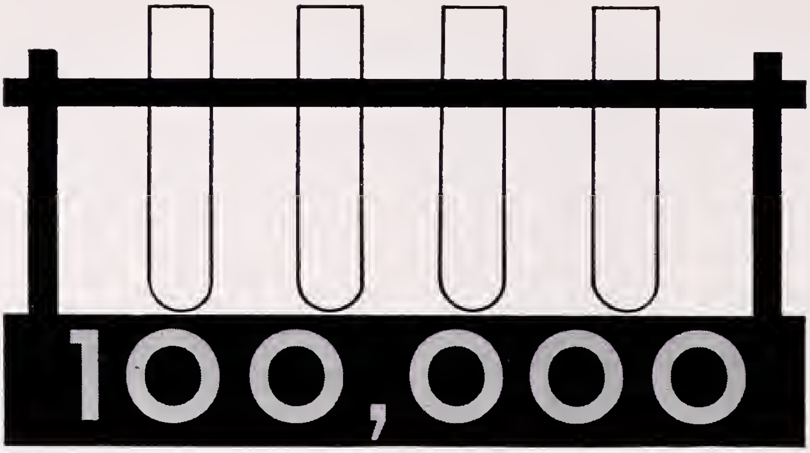
1. McGuire et al. (1952), J. Antibiotics & Chemo., 2:281, June.
2. Heilman et al. (1952), Proc. Staff Meet. Mayo Clin., 27:385, July 16.
3. Haight and Finland (1952), New Eng. J. Med., 247:227, Aug. 14.



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1. Blotner, H., and Marble, A.: New England J. Med. *245*:567 (Oct. 11) 1951.
2. Getting, V. A., and others: Diabetes *1*:194, 1952.
3. Wilkerson, H. L. C., and Krall, L. P.: J.A.M.A. *135*:209 (Sept. 27) 1947.

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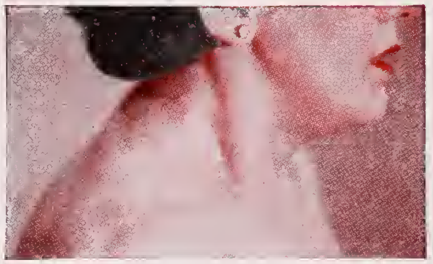
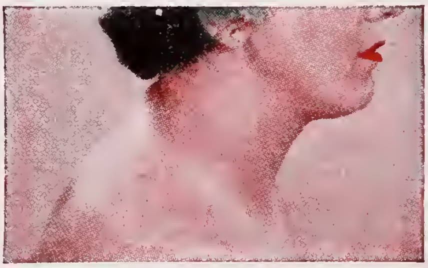
[1] Evans, R. R., and Rackemann, F. M.: *A.M.A. Arch. Int. Med.* 90:96–127, July 1952.



Before treatment. Observe typical facies and tense sternocleidomastoid.



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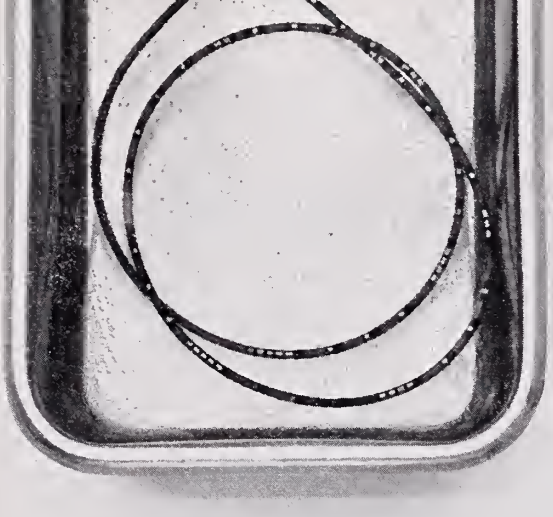

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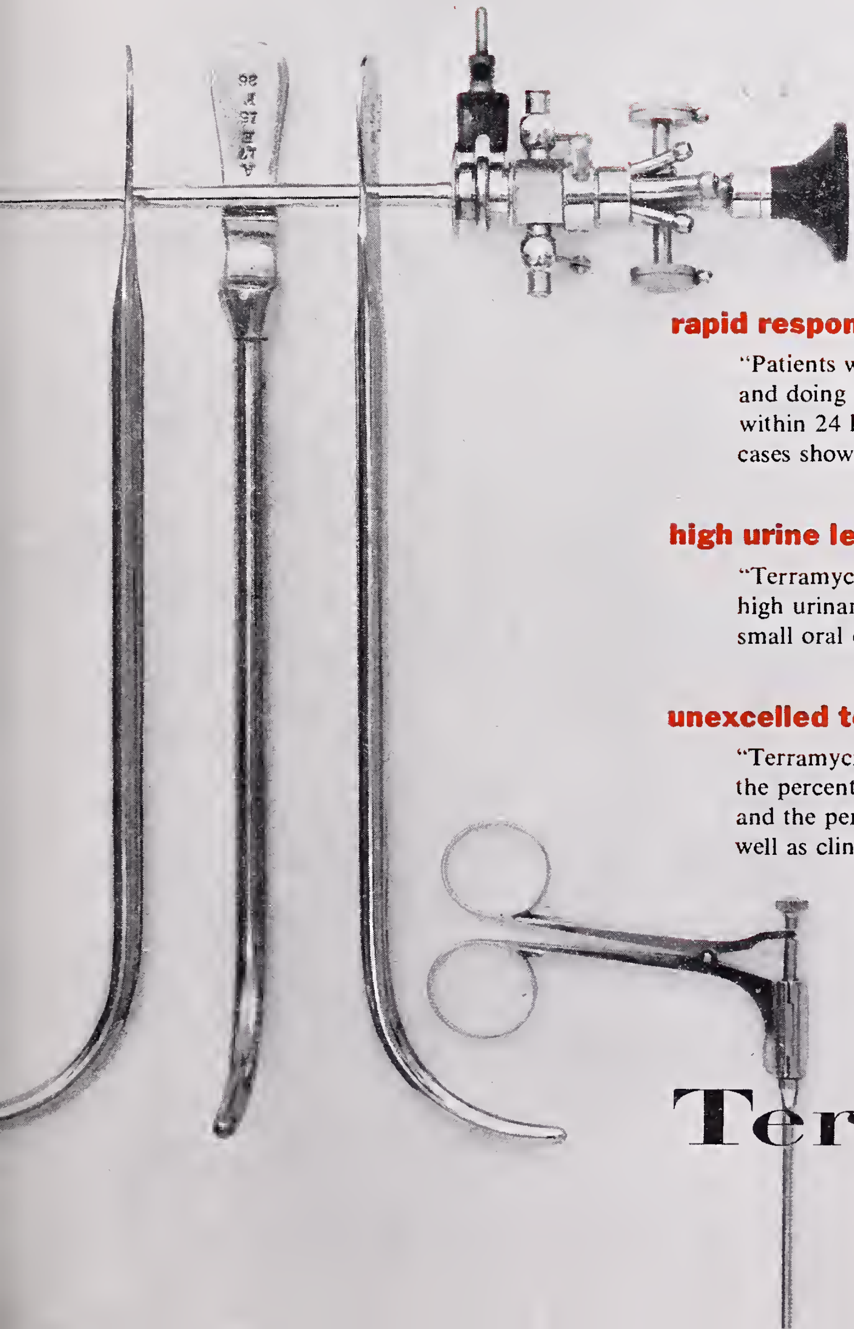

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1. Canad. M. A. J. 66:151 (Feb.) 1952.
2. J. Urol. 67:762 (May) 1952.
3. Ibid. 69:315 (Feb.) 1953.

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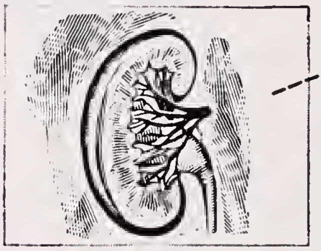

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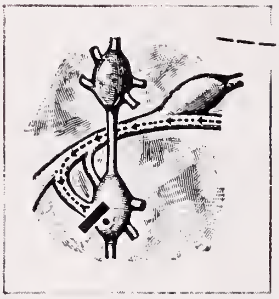

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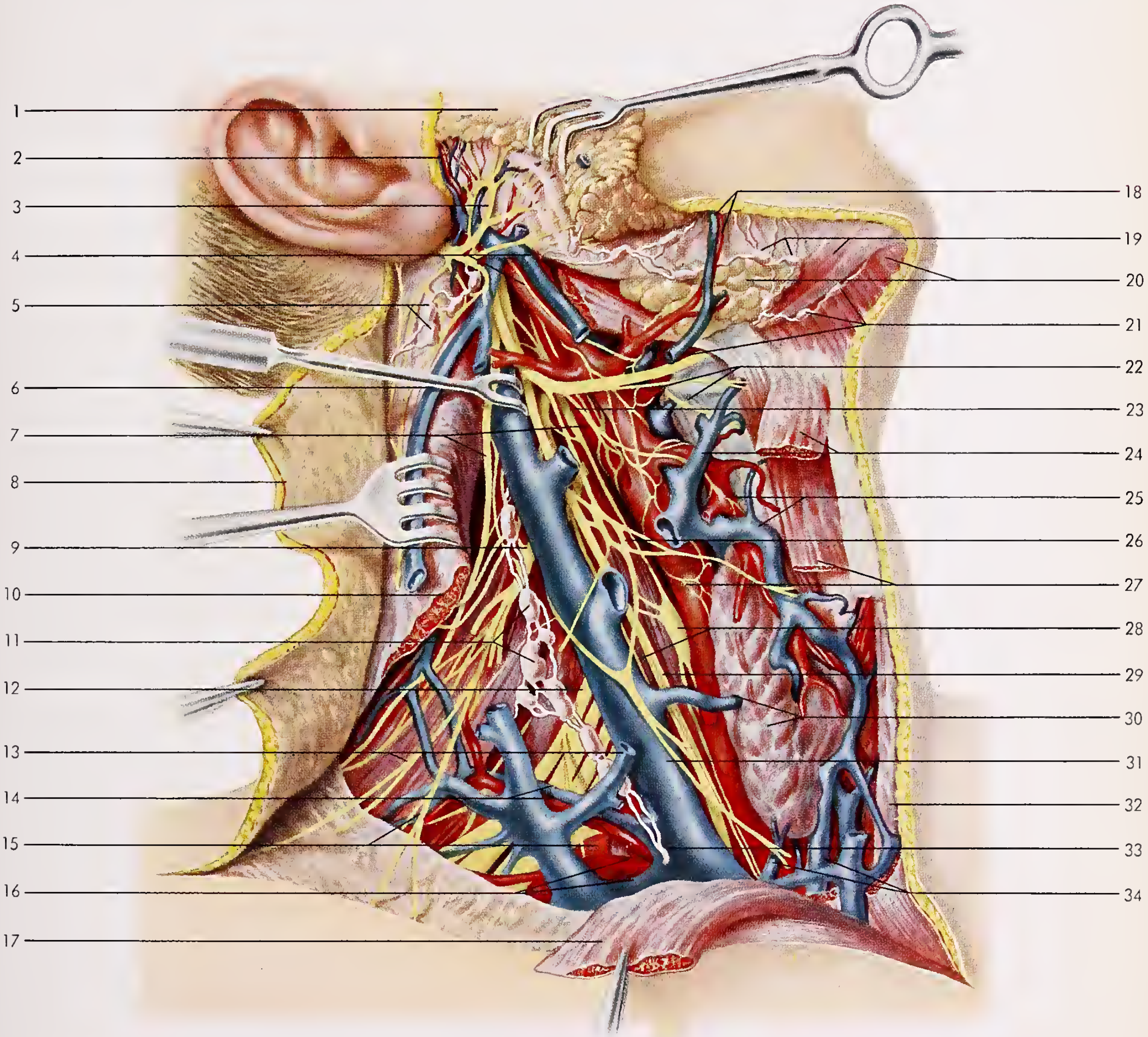

1. Parotid gland
2. Superficial temporal artery & vein
3. Temporal branch of facial nerve
4. External carotid artery & posterior facial vein
5. Superficial cervical lymph nodes
6. External jugular vein
7. Accessory nerve & internal carotid artery
8. Platysma muscle
9. Fourth cervical nerve
10. Superior position of sternocleidomastoid muscle
11. Deep cervical lymph nodes
12. Fifth cervical nerve
13. Posterior supraclavicular nerve & anterior jugular vein
14. Superficial cervical artery & vein
15. Middle supraclavicular nerve & subclavian artery
16. Transverse scapular artery & vein
17. Inferior position of sternocleidomastoid muscle
18. External maxillary artery & anterior facial vein
19. Submaxillary lymph nodes & digastric muscle
20. Submaxillary gland & mylohyoid muscle
21. Submental lymph nodes & hypoglossal nerve
22. Superior laryngeal artery & nerve
23. Superior cervical ganglion
24. Superior laryngeal vein & omohyoid muscle
25. Superior thyroid artery & vein
26. Ansa hypoglossi
27. Common carotid artery & sternothyroid muscle
28. Middle cervical ganglion & phrenic nerve
29. Vagus nerve
30. Thyroid gland & middle thyroid vein
31. Internal jugular vein
32. Sternohyoid muscle
33. Jugular lymphatic trunk
34. Inferior thyroid veins

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APRIL, 1953

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THE HERNIA PROBLEM

Confessions and Impressions

JOHN C. PIERSON, M. D.,*
Wilmington, Del.

Even the casual reader of surgical journals cannot help but be impressed by the frequency with which the subject of hernia rears its ugly head. The adjective "ugly" will not seem inappropriate to those who have had a reasonably active experience with the problem of hernia. They will agree, I think, that even though hernioplasty was one of the earliest surgical procedures attempted, and continues to be performed in great numbers each year, a full and complete satisfaction with results in this field has not yet been achieved. In spite of the profusion of papers dealing with various aspects of the problem one finds that a discouraging if not actually chaotic state of misunderstanding still exists. Detailed anatomy of the inguinal canal, even the lack of uniformity in terminology, operative techniques, the incidence of recurrence and the factors responsible for recurrence—these points and others need only to be mentioned to illustrate the complexity of the problem. The Smith-Petersen nail has done much to invalidate Kellogg Speed's designation of the femoral neck fracture as the "unsolved fracture," but to date no such magic wand has come to the rescue of the hernia problem.

In the face of these facts it is with some temerity that I embark upon further discussion of this subject. My sole reasons for such a venture are first that the problem itself is a fascinating one, and secondly that the points to be brought out are gathered from the bibliography of personal experience and may not have been sufficiently emphasized previously. There is something less exotic about the repair of a hernia than one finds in a major gastric or intestinal resection for an extensive neoplasm. There is also a world of difference in one's reaction to that post-operative bugaboo peculiar to each, viz., recurrence. Chagrin is a mild word for the one; disappointment amply describes the other.

What then has my own experience with the hernia problem taught me?

DIAGNOSIS

While only occasionally does one encounter difficulty in detecting the presence or absence of a hernia, now and again the question will try one's skill in this field of examination. It is probably true that a patient is more often tagged with the diagnosis of hernia when none actually exists than that error in the reverse direction is made. Some of the reasons for the "false positives," it seems to me, are (1) that a patulous or dilated external inguinal ring is construed as a hernia per se; (2) the failure to understand what actually constitutes a cough impulse; (3) muscle bulge. Muscle bulge is seen in thin, muscular individuals and in no sense represents a hernia. It does not require operation, and in fact cannot be materially altered by a plastic musculo-fascial maneuver. Muscle bulge, as distinguished from true hernia, is always bilateral and is characterized by a ballooning of the internal oblique muscle, not so much in the canal as lateral to it. There is no true cough impulse.

On the "false negative" side one may sometimes find it extremely difficult to demonstrate a hernia of the indirect type even though the history seems unequivocal. This is especially true in the case of children and in patients who have been wearing a truss right up to the time of examination. It occurs also in a small group of patients who though not wearing a truss give a history that only very occasionally does a "lump appear in the groin." In this type of patient the internal ring is small, the sac almost obliterated, and only when omentum or bowel finds it way through the abdominal ring and distends the sac can a positive finding of hernia be established.

---

*Director, Department of Surgery, Memorial Hospital.

It is true of course that incarcerated omentum in the sac of a femoral hernia may pose a problem since the hernia will not give a cough impulse and being non-reducible may be confused with an enlarged lymph node or a soft tissue tumor.

In the field of differential diagnosis there arises also the desirability of pre-operative recognition of indirect as opposed to direct hernia. My batting average in this respect is only fair. It is not purely an academic matter, however, since in the case of indirect hernia, one can offer a much more certain prospect of permanent cure, even though such a patient is obese, in the decade of life described as the youth of old age, and whose daily habits involve strenuous physical effort. I believe that one should try in his diagnostic examination to arrive at a definite impression as to the type of hernia present and should so designate it on his office record.

Age

While it is undoubtedly safe to operate upon infants at any age and in the case of incarceration, one has no other choice, in general it is my policy to defer operation until the child is around 2-3 years of age. At this age the cord and other structures are not so tiny, urinary incontinence is less of a problem and the general care of the patient seems easier. When, however, there is a history of recurring episodes of irreducibility or evidence that a yarn type of truss fails to retain the hernia, I believe that nothing is gained by waiting until an arbitrary age of 2-3 years is reached. It has been my observation that few instances of permanent cure of hernia in children can be expected through use of a truss alone. Many such cases apparently "cured" at 5-6 years of age will "develop" a hernia in later years (12-25).

At the other extreme of life my position is even less equivocal. I feel that any patient *having symptoms* related to his or her hernia—whether that patient is sixty, seventy or even eighty years of age—should be offered a surgical repair of his hernia. If necessary, operation can be done under local anaesthesia. One has only to be the recipient of a smile of gratitude from an elderly patient who has been able to discard a poorly fitting, irritating, and ineffectual truss to be convinced that when a patient's hernia is a source of annoyance, it is a kindness to offer him the alternative of operation. This is especially true in the large scrotal type, even though there is no history of periodic incarceration. A small, symptomless, direct protrusion in an elderly patient is not considered an indication for operation.

Truss

I have little to say in this regard beyond the fact that if a truss is to be used, its proper fitting should be checked by one thoroughly familiar with the anatomy of the inguinal canal. Furthermore, I can find no reason for using a double truss if the hernia in a given case is demonstrable on only one side. A truss finds its greatest usefulness in the small direct type of hernia and is a futile gesture in the complete (scrotal) type of indirect hernia.

Technique Of Repair

This is a wide and fertile field for both academic and practical discussion, but it is quite beyond the intent of this paper.

As a fundamental principle, I believe that the operating surgeon should be prepared to vary his approach according to the circumstances peculiar to the case in hand. On this basis he will find it expedient to run the gamut of such modifications as orchiectomy, the use of tantalum mesh, fascia lata, perhaps a cutis graft, etr. Certainly it is true that in my concept of hernia repair, proper re-enforcement at the point of critical weakness is worth more than all the added steps to buttress the first line of defense. A few properly placed sutures of whatever material, but grasping tissue of good fascial quality, and avoiding tension give one the same sense of security that observance of similar principles gives to closure of the duodenal stump as part of a gastrectomy.

Today most surgeons prefer non-absorbable suture material—silk, cotton, or wire—and some claim a lowered recurrence rate as a corollary to this practice. I happen to prefer silk or cotton, and yet I must confess that in the occasional case complicated by prolonged "spitting" of this material, I have wished that I had stuck to my former habit of using catgut.

The question sometimes arises as to whether appendectomy or other procedures should be added to the primary hernia repair. I have found no reason to avoid such complementary operations where the viscus is accessible and not involved in an acute process that might contaiminate the hernia wound.

Another controversial point has to do with the simultaneous repair of a bilateral hernia. Recurrence under such circumstances is not merely a matter of subjecting the patient to a second operation and therefore no more taxing on the patient than if the original decision had been in favor of a two-stage procedure. As has been well said, the most difficult kind of hernia to repair is the recurrent hernia. In spite of personal experience with recurrence where bilateral repair has been attempted in one stage, I have not found it practical to follow any routine in this regard. Rather the decision to proceed with the opposite side is based upon the findings encountered on the side first approached. The side having the larger defect is selected for the first operation, and if the tissues are found easily susceptible to re-enforcement without undue tension and without need of supplementary material, the second side is undertaken at the same sitting.

Another point that might be made in respect to operative technique has to do with disposition of the sac in cases of direct hernia. It is my contention that since in such cases the neck of the sac is not narrower than the fundus, nothing is gained by isolation and subsequent ligation of it. Effective repair of this type of hernia is dependent rather upon reconstruction of the canal floor itself. For the last several years in attempting to accomplish this end, I seem to have become enamored of the McVay modification, making use of Cooper's ligament as a firm unyielding anchorage site. Anatomically and physiologically this maneuver seems to make sense. It is readily admitted that all operators do not subscribe to this view, but current writings would seem to indicate that the McVay method of repair has won many converts.

Specific Technical Considerations

Under this caption I would like to refer to a few details that in my own experience seem to have acquired special importance and value.

1. Of these I would mention first the desirability of preserving the umbilical cicatrix in repair of hernias in this region. This is easily accomplished by a curved incision either at the upper or lower rim of the umbilicus and reflection of the skin flap accordingly. Just prior to skin closure one or two sutures tacking the dermal layer to the underlying fascia will umbilicate the skin and effect a very natural restoration of this particular anatomic landmark. Some may not agree that the cosmetic objective described deserves the attention accorded it here, but some experience with it convinces me that it is a worthwhile refinement of the standard approach.

2. Repair of inguinal hernia in infants and children: In this category I feel strongly that operation except in the case of incarceration, should always involve exploration of both sides. This conclusion is an outgrowth of two experiences in which operation on the obvious side was followed in a few months by the appearance of a well developed hernia on the opposite side.

In connection with bilateral exploration I would like to point out the distinct advantage of using a curved suprapubic (Pfannenstiel type) incision. The incision provides adequate exposure for hernia repair in children and has the advantage of avoiding the fat and vascularity so annoying in the classical inguinal incision.

3. Approach in femoral hernia: I much prefer the inguinal route. While its special advantage is to be found in cases in which strangulation has occurred, I have come to use it as a routine procedure and firmly believe that in this approach one has a much better exposure of the anatomy of the inguino-femoral region.

4. Sliding Hernia: Here I must admit that I could easily "go overboard" in my enthusiasm for a particular technical maneuver. In the field of hernia surgery I

know of no change in technique that has proven as gratifying to me as has the adoption of a combined inguinal and abdominal approach in dealing with this particular problem. The simple expedient of entering the abdomen through a separate or extended incision above the internal ring has changed what had always been a bewildering and frustrating type of dissection into one that is now simple, easy and completely satisfying. By entering the free peritoneal cavity, delivering the sigmoid or cecum to a level where the whole anatomic mechanism responsible for the sliding hernia can be readily visualized, the steps necessary for correction of it become immediately apparent. By excising a wedge of peritoneum as it is reflected onto the lateral parietal peritoneum the colon can be fully reduced into the abdominal cavity and an accurate and complete closure of the sac—not just its anterior wall—can be easily effected. One has only to carry out this type of management once to be convinced that it has real merit and that it is distinctly superior to the limitations imposed by confining oneself to an inguinal dissection of sliding hernia.

The foregoing impressions and conclusions, while derived from a fairly active personal experience, are of themselves unimportant unless they have been arrived at on the basis of some degree of follow-up analysis. Only by personal post-operative examination can one fairly evaluate one's results in this field. Not only the matter of recurrence, but testicular atrophy, wound pain, paraesthesia, type of healing, etc., will often go unrecognized unless patients are specifically instructed to return for check-up examination. While I must confess that I have not made use of a well-organized tickler system, I do make a practice of periodic re-examination for at least a year in the uncomplicated case and over a period of two years in the recurrent or more involved type of hernia. In this connection I can say that this habit was largely responsible for my adoption of the McVay procedure in direct hernia. I have also learned that it is necessary to follow cases for a longer period than two years if one is to get an accurate picture of one's effectiveness in dealing with the hernia problem.

Just this week I saw a patient upon whom I had operated three years ago for a bilateral direct inguinal hernia, and who during the course of a routine physical examination was told by his physician that he had a recurrence on one side. The patient himself was not aware that he had developed a hernia. My own findings, however, confirmed the observation of his doctor.

This very recent experience, a timely one perhaps, but no less ironical, would seem to justify the title of this paper, and to emphasize what must already have been apparent, viz: that I still have much to learn about the surgical cure of inguinal hernia.

TISSUE ELECTROLYTE ABNORMALITIES
In a Case of Chronic Congestive Heart Failure

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The edema characteristically associated with congestive heart failure is believed to represent an expansion of the extracellular fluid volume, the main components of which are the electrolytes found in the extracellular space.[1] Many hypotheses have been advanced regarding the accumulation of such fluid, but irrespective of other mechanisms which may be involved, the kidney is intimately related to its pathogenesis, since in heart failure there is an inability of this organ to handle sodium, chloride, and water in a normal way. Because of these observations, the theory of forward heart failure was advanced by Merrill.[2] The urine excreted by congestive failure patients is hypotonic for sodium and chloride,[3] and diuresis induced by present day therapy increases water, sodium, and chloride excretion.[4] Thus, marked fluid and electrolyte abnormalities are encountered in patients suffering from heart failure.

The serum sodium level in patients with heart failure and edema is usually low,[5] indicating hypotonicity of the extracellular compartment. Serum potassium is usually normal, but some authors have demonstrated a negative potassium and nitrogen balance as the disease progresses, with a reversal of this picture as clinical improvement takes place.[6,7] Serum chloride levels may vary, and frequently a low value with a relative alkalosis may result when mercurials and resins are used in therapy.[8] Recently, the effect of digitalis therapy has been related to the potassium content of the heart muscle.[9]

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The sodium retention and potassium loss are not dissimilar to the action of DOCA and other steroids,[10] and the role of the adrenal cortex in the pathogenesis of congestive heart failure is not clear, although the pattern of stress is suggested by the electrolyte findings. The decrease in filtration rate, renal blood flow, and increased filtration fraction observed in specific measurements of kidney function may be due solely to a decreased cardiac output, but these changes are not dissimilar to those found with the administration of steroid hormones.[11] Thus, in the pathogenesis of most types of congestive heart failure there are definite abnormalities in renal function, fluid and electrolyte partitions, and possibly adrenal cortical function, as well as the classical decreased cardiac output.

Since the extracellular fluid in the normal individual represents only 16% of the body weight, measurement of extracellular (serum) electrolytes gives only a sampling of the condition existing within the cell, and it must be recognized that the extracellular fluid is merely a transport medium, the vital portion of the body being the cell.

In an attempt to further elucidate the complex problems involved, a project was commenced wherein tissue electrolytes (deltoid muscle biopsy) would be measured at the same time as renal function and adrenal function, and it is the purpose of this paper to present one case of progressive cardiac failure in which detailed chemical studies were made during the course of the disease.

Materials And Methods

The patient, a 47-year-old white male, has been under treatment for hypertensive cardiovascular disease and congestive heart failure since 1950. During the past twenty months he has been under the authors' observation both as an in- and out-patient. There has been a steady progression of his illness, with increasing failure and more persistent edema, and at the present time his condition is apparently terminal.

Blood urea nitrogen, sodium, potassium, chloride, and CO_2's were done daily during the study as were analyses of 24-hour urine specimens for sodium, potassium, and chloride. Repeated urea clearances and PSP excretion tests were performed, and in an attempt to assess adrenal cortical function, several eosinophil counts following injection of ACTH (Thorn Test), and urinary 17-keto-steroid determinations, were made before and after administration of mercurial diuretics. Two muscle biopsies during hospital admissions were done during the twenty-month period of study. Sodium and potassium were estimated by means of an internal standard flame photometer,[12] and the chloride was determined by the method of Schales.[13] Standard morning urea clearances were performed, using the urease method, and ketosteroid determinations were done by the method of Drekter as modified by Keller.[14] Muscle biopsies were performed under local anesthesia, care being taken to infiltrate the anesthetic down to the muscle sheath only. On muscle, sodium and potassium estimations were performed on a wet ash preparation, chloride by the modified Volhard technic, and water content was determined by drying of the muscle to a constant weight, the fat being extracted by multiple ether washings. For comparison of data, the confidence limits of a normal series is presented, these representing the findings from ten muscle biopsies (deltoid and gastrocnemius) on five normal, healthy, white male volunteers.[15]

Results

The BUN values throughout the period of study varied from normal to slightly increased, the values being from 8 mgms.% up to a maximum of 30 mgms.% The urea clearance test remained consistently around 40% of normal, and the PSP test varied from 20 to 30% clearance in one hour. Total eosinophil counts (Thorn Test) remained consistently low, varying from 31 to 85 per cu. mm., and the ketosteroid determination varied from 12 to 14 mgms. per 24 hours—that is within normal limits—except on one occasion, when during a severe bout of failure one reading of 5 mgms. per 24 hours was obtained, this being a low figure. The CO_2 combining power remained within normal limits until recently, when during a severe bout of fail ure low figures varying from 18-22 mEq. per liter (normal 24-34 mEq. per liter) were recorded. The electrolyte findings are summarized in the table below, which also gives the normal ranges for comparison. Urine sodium values are mentioned in the discussion.

Table 1—Electrolyte Studies

		Whole Muscle (fat free)				Dry Muscle (fat free) and serum					
		L|Kg Water	mEq|Kg Sodium	mEq|Kg Potassium	mEq|Kg Chloride	mEq|Kg Sodium	mEq|Kg Serum Sodium	mEq|Kg Potassium	mEq|L Serum Potassium	mEq.|Kg Chloride	mEq|L Serum Chloride
Ranges of Normal		0.745 to 0.785	33.3 to 41.5	90.4 to 93.2	24.8 to 35.8	147 to 177	140 ±2	387 to 409	4.5 to 5.5	107 to 153	100 to 110
T. H. (M) Age 48 Congestive Cardiac Failure	Early	0.789	45	89	33	213	130	422	5.0	160	97
	Late	0.791	60	78	32	274	137	355	4.5	145	104

Discussion

The low serum sodiums noted in congestive heart failure with edema may indicate a lowered osmotic pressure of the extracellular fluid, but correction of this defect is difficult and frequently impossible.[16] The explanation of this phenomenon may simply be an excessive water retention by the kidney,[17] but from the data presented, the possibility of marked intracellular migration of sodium is apparent. The low tissue potassium level is compatible with previous reports,[18,19,20,21] and the physiological implications are many. With progression of the disease in the present case, an aggravation of the existing defect was observed. By correcting for fluid content, it is seen that all of the changes may not be based on further accumulation of edema fluid and dilution of the tissue content of electrolytes only.

Urine sodium values, as would be expected, did rise with the clearance of edema fluid and would then fall again (5-20 mEq. per liter of sodium, 50 mEq. per liter of potassium. 10-20 mEq. per liter of chloride) when therapy was stopped or the patient became refractory. It is of note that when mercurial fastness occurred and the patient was in an apparently terminal condition, an improvement in the extracellular electrolytes resulted in clinical improvement. This was accomplished by the administration of potassium acetate (40 mEq. daily) and several infusions of 3% sodium chloride (200 cc.) with 2 cc. of mercuhydrin and 20 cc. of aminophylline. A transient rise in renal function associated with a hypertonic salt solution along with an increased tubular mass for sodium may account for some of the changes.[22] Other newer therapeutic attempts offered this patient included the prolonged use of Dirnate (carbonic anhydrase inhibitor),[23,24] 1.4 molar diabasic sodium succinate - fumurate,[24] and with these devices along with the available electrolyte data, this patient has been maintained for about twenty months. The Thorn tests did not suggest any impairment of adrenal function and the 17-ketosteroids and urea clearances did not display any specific abnormalities that could not be related to a decreased cardiac output.

Summary

A case of progressive cardiac failure is presented in which detailed electrolyte studies and attempted estimates of adrenal function were made. Marked electrolytic disturbances occurred, but these could not be related to any definite impairment of adrenal function.

Acknowledgement

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TREATMENT COMPLICATIONS IN A CASE OF LYMPHATIC LEUKEMIA

With Secondary Hemolytic Anemia

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Hemotological complications in patients with leukemia have received increasing attention over the past several years. One of the more common complications is acquired hemolytic anemia which can now frequently be recognized early by using the Coomb's Test to detect autoagglutinating antibodies in the serum and on the red cells. Some of these patients are able to have a lengthened span of useful life thanks to the steroid hormones.

The case to be presented is of interest because the diagnosis was difficult to establish, the treatment produced an excellent clinical response, and the terminal course was most unusual.

Case Report

A 49 year old white male was first seen in The Memorial Hospital, Wilmington, Delaware in July, 1950. At that time his blood count showed 12 gm. of hemoglobin with 75,000 white cells. The differential count was 95% lymphocytes with 5% neutrophils. The platelet count was 120,000. A diagnosis of lymphatic leukemia was made by his physician. Cervical nodes were first noted in February, 1950. No specific treatment was ordered until June of 1950 when one pint of blood was given for increased weakness. In spite of the transfusion the patient's weakness suddenly became more marked in the last week in June, and he was hospitalized.

His past history and family history were not remarkable.

System Review was significant as follows: There was no history of bruising or bleeding. Removal of all teeth four months previously had not caused excessive bleeding. There was slight dyspnea with the present illness. The urine had been somewhat dark for a few days. Stools had been black ever since iron was started several months earlier.

Physical examination showed normal vital signs with a Blood Pressure of 140/80. The patient was well-developed and well-nourished but looked quite weak. He was slightly icteric. His mucous membranes were pale. There were nodes up to 1.5 cm. in the posterior cervical chain, especially on the left. There were also several small submandibular nodes. The lungs were clear to percussion and auscultation. The heart sounds were slapping in nature, but no murmurs were heard. The liver was three fingers below the costal margin. The spleen was three fingers below the level of the umbilicus, and extended to the mid-line. Nodes up to 3 to 4 cm. in diameter were noted in the femoral and inguinal area.

The blood count on admission was 500,000 red cells with 2 gm. of hemoglobin, 69,000 white cells, and 30,000 platelets. On July 7th after transfusions, the hemoglobin rose to 11 gm. and the patient was discharged from the hospital. By July 19th the hemoglobin had dropped to 4.8 gm. with white blood count of 15,000 and platelets of 60,000, and he was re-admitted to the hospital. The reticulocyte count was then noted to be 9.8% and the bilirubin, chiefly of the indirect type, was 5.4 mgm%. On admission his physician thought that the sudden drop in hemoglobin could be attributed to gastro-intestinal bleeding because of the history of black stools. However, the repeated drop in red cells while the patient was under close observation, plus his bilirubinemia and elevated reticulocyte count pointed to an acute hemolytic process as an explanation for the anemia. His iron therapy, as a cause of the black stools, was initially overlooked. Although most of the laboratory and clinical evidence was striking, the negative Coomb's Test was disappointing. Since 20 pints of blood were needed up to July 27th, with no obvious source of blood loss, the evidence seemed sufficient to treat the patient as an acquired hemolytic anemia. A bone marrow biopsy on July 27th showed hypercellular marrow with a considerable proportion of lymphoblasts. There were few erythropoietic forms and those seen were chiefly normoblasts. Megakaryocytes were almost completely absent.

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At that time (July, 1950) adrenocorticotrophic hormones were not yet generally available. Therefore, the patient was first treated with nitrogen mustard because of its known effect on antigen-antibody relationships and on leukemia, although it was not considered the ideal drug for the leukemia itself. On July 29, 1950, after his hemoglobin had dropped to 2 gm. with a white blood count of 96,000 in spite of repeated transfusions, he was given one dose of nitrogen mustard (.2 mgm. per kg). Blood transfusions were continued. His response was good. His hemoglobin remained at 8.5 to 7 gm. for two weeks and then dropped again on August 23rd to 4.5 gm. His white count also dropped after nitrogen mustard to a low of 6,000. His reticulocyte count remained up with a high of 11% on August 14th. His bilirubin had dropped to 2.7 mgm% on August 14th but by the 23rd it rose again to 3.7 mgm%. He had deteriorated clinically in association with the blood changes. Therefore, more nitrogen mustard was given on August 23rd in the same dose as before. On August 31st the hemoglobin was 7 gm. and the white blood count was 11,500 with 13% neutrophils and 85% lymphocytes. The patient improved clinically, but it soon became obvious that the nitrogen mustard was only transiently affecting his hemolytic process. From July 1st until the time of the first (July 29th) nitrogen mustard, the patient had received 28 transfusions and from the first mustard until August 31st he needed ten more.

On September 6th, when he had 5.5 gm. of hemoglobin and a white blood count of 6,900 with 20,000 platelets, x-ray therapy was started to the spleen with 50 r. at 70 cm. through a 14 x 14 port for two doses. This seemed to afford him additional relief and it reduced the size of the spleen. However, by September 27th the hemoglobin was found to be 4 gm. with a red blood count of 100,000; white blood count 5,900 and platelets of 20,000. The reticulocyte count was then .3%. The bilirubin remained at 2.5 mgm%. The bone marrow was reported only as compatible with chronic lymphatic leukemia.

On September 27th ACTH-Wilson was obtained and started on 10 mgm. q.6 hrs. This was increased to 15 mgm. q.4 hrs. on October 2nd because of a limited eosinophile response (from 274 to 200). By October 6th the hemoglobin had risen to 5.5 gm. and the white blood count to 21,000 without transfusions, and the patient felt much better. Up to this point from July 1st he had been given 42 pints of blood. His response to ACTH was therefore counted as further evidence in favor of hemolytic anemia in spite of the persistently negative Coomb's Test. On October 7th the dosage of ACTH-Wilson was dropped to 15 mgm. q.8 hrs. By October 9th the hemoglobin was 8 gm.; red blood count 1.8; white blood count 21,000; reticulocyte count 5%; and the spleen had become one-half its original size. It had shown only a slight response following the x-ray therapy prior to the ACTH, but a delayed response to x-ray could not be ruled out. In the middle of October, 1950, the ACTH supply ran out for a few days. The spleen increased slightly in size but the count remained at 9 gm. of hemoglobin and 8,000 white blood count. The dose of ACTH-Wilson was dropped to 10 mgm. q.8 hrs. At that time the patient felt as well as he had been in the spring of 1950. His bilirubin was then 1.2 mgm. He was continued on ACTH with improvement except for a slight drop in his hemoglobin from 10 gm. to 9.5 gm. and slight change in the size and consistency of the spleen. After the first of November the supply of ACTH was again interrupted for 2 to 3 days. Later, the dosage of ACTH was reduced to 10 mgm. q.12 hrs., but the hemoglobin dropped slowly to 8 gm. by November 10th. The dose was then jumped to 40 mgm. per day. The hemoglobin did not go up until November 21st when it reached 9.5 gm. By then the patient was able to return to full time work On December 1st the spleen was irradiated again since it had shown no change during the preceding two months. It was given 100 r. in air through a 20 x 12 port at 70 cm. with a 200 KV for a total of 3 anterior ports and 2 posterior ports or an estimated tumor dose of 240 r. Although there had been little change in the spleen or in the blood count, on December 8th it was decided to try stopping the ACTH. The count on that date showed a hemoglobin of 10.5 gm. and white blood count of 10,000 with 12% seg. and 88% lymphocytes. The reticulocyte count was 9%. The patient did fairly well for about a month, although in the interim the spleen had increased in size in spite of the x-ray therapy. On January 2, 1951, he lacked his usual sparkle and pep, and the hemoglobin was found to be 9 gm. On January 5th, because of a further drop in his hemoglobin to 8.5 gm. with a white blood count of 5,700, reticulocyte count of 1.3%, and bilirubin 1.04 mgm, cortisone was started at 100 mgm. daily I.M. In four or five days the spleen shrank from 13 cm. below the costal margin to 10 cm. from the costal margin. The patient was clinically improved with a hemoglobin rise to 10 gm. and a red blood count jump from 2.34 to 3.07. The white blood count was 10,000. By February, 1951, he was on oral cortisone 25 mgm. t.i.d. The spleen was only 9 cm. from the costal margin and the hemoglobin was up to 12.5 gm. The dose of cortisone was then dropped to 60 mgm. per day and was continued at the same rate to May, 1951, when it was reduced to 25 mgm. b.i.d.

During all this period of steroid therapy there had been relatively few side effects. The patient worked full time on a laundry truck without difficulty. He had been on a restricted sodium diet and on 2 to 3 gm. of KCl per day. The blood pressure varied between 120/70 and 140/90. The blood sugar (feasting) reached 190 on one occasion but no glycosuria was noted. His weight gradually rose from 150 to 165 but there was no overt sign of edema. The weight gain was thought to be real weight consistent with his improved appetite. Mild axillary adenopathy with several nodes up to 1 to 2 cm. in size remained relatively constant. There were no intercurrent infections until June, 1951, when he developed bronchitis which responded to penicillin.

By August 17, 1951 his hemoglobin was 12.5 gm. and white blood count 8,000 with 36% seg; 2% non-seg. 56% lymphocytes; 1% monocytes and 5% esoinophils. The spleen remained at 9 to 10 cm. below the costal margin. By October 2nd he had done so well that it was thought safe to reduce the cortisone to 25 mgm. per day. On October 17th his hemoglobin dropped to 11 gm. and he had another episode of acute bronchitis, once again easily controlled by penicillin. A drop of the hemoglobin to 10 gm. by October 30th was thought to be sufficient reason to raise the cortisone to 50 mgm. per day and on November 2, 1951, further x-ray treatment of the spleen was started through an 18 x 16 port for 100 r. in air times four. By November 23rd, the hemoglobin had risen to 13.5 gm. and the white blood count to 11,400. There was a slight increase in the size of the spleen and it was thought permissible to drop the cortisone again to 25 mgm. per day. The patient did well through December, 1951. On December 31st, the hemoglobin was 12 gm. with a white blood count of 8,300.

On January 14, 1952, purpura was noted on the legs below the knees, with areas 2 to 4 mm. in size. The platelet count then was 64,000, but by January 18th it had dropped to 34,000. The spleen remained about the same. The patient was again hospitalized for study. Platelet counts varied from 30,000 to 60,000. Clot retraction was normal: the hemoglobin and white blood count showed no change. The bone marrow was still that of a chronic lymphatic leukemia. Megakaryocytes were present. The cortisone was increased to 200 mgm. per day. On the increased cortisone, the spleen shrank slightly more in size, and the patient showed subjective improvement, although there was little change in the platelet count. The purpura faded on bed rest but on February 4, 1952, after he had been allowed home for a few days, the purpura became worse especially on the legs. In addition, a few petechiae were noted on the hard palate and over the trunk. The platelet count was 20,000, white blood count 19,000, and hemoglobin 13 gm.

The patient was re-admitted for a splenectomy on February 7th. His immediate response was good. There was a rapid rise in the platelets to 48,000 by February 9th and to 180,000 by February 24th. The white blood count which had averaged around 20,000 also rose to 35,000 to 40,000 The spleen pathologically showed chronic lymphatic leukemia plus one 4 to 5 cm. area of infarction. It weighed 1680 gms. On February 19th, after the patient had been up and about and had started to eat, signs of intestinal obstruction developed and necessitated a re-operation on February 24th. Enlarged mesenteric lymph nodes were found which had not been noted at the time of the first operation. There were also adhesions binding down and apparently obstructing part of the colon. These were not where the surgeon would have expected them if they had been caused by the splenectomy. Although the adhesions were freed, the patient did not do well post-operatively. He developed recurrent abdominal pain and signs of intermittent small bowel obstruction. This was thought possibly to be related to enlarged mesentric lymph nodes. Cortisone 100 mgm, had been given daily up to February 14th when it was dropped to 50 mgm. per day. His general condition was poor. As a desperate measure x-ray therapy was started to the root of the mesentery in the abdomen but the patient's course went rapidly down-hill. There was only time for one x-ray treatment . . . he died on March 2, 1952.

POST-MORTEM EXAMINATION

Post-mortem examination revealed the following significant findings: There was some congestion in both lung bases. Clotted blood was present in the anterior descending coronary artery. The liver weighed 2380 gm. Ninety cm. of the ileum was swollen and dark red in color; and the walls were engorged with blood. Multiple thrombi were present in the mesenteric vessels going to this section of the bowel. The lymph nodes were enlarged and indurated throughout the body. On microscopic examination, the liver showed scattered infiltration of round cells in the lymphoid series, some of which were immature. The adrenals seemed normal although their natural yellow color was absent. There was some infiltration of the kidney capsule by leukemic cells. The usual structure of the lymph nodes was replaced by a diffuse infiltration of rounded cells of the lymphocytic series, many of which were immature.

DISCUSSION

This case illustrated many of the problems in the diagnosis and treatment of hematological complications of leukemia. The patient had an excellent response to steroid therapy but an unexpected end result. His sudden onset of anemia was initially ascribed to gastro-intestinal bleeding. It was not until his second hospital admission in the middle of July 1950 that a hemolytic process was suspected. The Coomb's test was disappointing, but the negative result was perhaps more of a reflection on the way the test was done than on the diagnosis although the presence of hemolytic anemia with a negative Coomb's test has been mentioned in the literature.[1,3] The high reticulocyte count, increased indirect bilirubin and need for large amounts of blood without obvious blood loss seemed to be sufficient evidence for the diagnosis. The patient's response to therapy and his clinical course strengthened the impression of acquired hemolytic anemia.

Determination of fecal urobilinogen would have been of confirmatory value.[4]

The initial bone marrow report, which noted a crowding out of the erythroid forms, suggests that the anemia also had "myelophthisic" features. Since some studies have shown that many leukemics have red cells with shorter lives than average, it should be remembered that this mechanism can also of itself eventually lead to severe anemia in leukemia without the more dramatic picture seen in an acute hemolytic process.[5] This patient's anemia was most likely due to a combination of these factors. The treatments, all of which had some primary effect on the underlying leukemia,[4,2,6] are therefore hard to evaluate in respect to the hemolytic process alone.

From a theoretical point of view an abnormal antigen antibody relationship is thought to form at least one of the mechanisms for the hemolytic reaction.[9, 8,1] Nitrogen mustard which was given to the patient for this reason, probably did also have some effect on the leukemia itself as can be gauged by the drop in the white count. One cannot prove, but can only speculate, whether the beneficial effect on the anemia in this patient was because of the clearing out of the overcrowded leukemic marrow or because of the interruption of the hemolytic process. The fact that the reaction only lasted about two weeks seems to be in favor of the viewpoint that the nitrogen mustard acted as a desensitizing agent. In other conditions where nitrogen mustard has been used for its blocking effect on antigen antibody reactions, its effective duration is about two weeks.[10]

Radiotherapy to the spleen for secondary hemolytic anemia is not usually recommended. However, it is often used to control the level of the white cell count. This patient did seem to show clinical improvement after the initial use of radiotherapy in September 1950. The exact reason for the improvement is not clear, but the relatively small effect on the white blood count in relation to the shrinkage of the spleen and the improvement in the hemoglobin certainly suggest that splenic irradiation may have helped interrupt the hemolytic process. This has subsequently been demonstrated in another case where no other therapy was used.

Adrenocorticotrophic hormone was not used sooner in this patient because it was not available. Furthermore, its use for such cases had not been generally stressed early in 1950. Most of the reports on its success in the treatment of hemolytic anemia have been subsequently published. ([11, 12, 13, 14, 15, 16]) One to two-year end results have seldom been mentioned. This patient's response to ACTH was much more dramatic than to any of the therapy preceding it. No blood was needed from then until terminally. In December, 1950, radiotherapy was used with the hope that the combined effect of ACTH and x-ray might be better than either alone. The fact that there was some brief stabilization of the hematological status indicated that x-ray may have played a small part in the response since in November there had been a slight but rapid drop in hemoglobin when ACTH was stopped for only a few days at a time. The third time x-ray was used there was no definite response.

The switch to cortisone was effected without difficulty and in fact the results seemed somewhat better than with an equivalent dose of ACTH. This too cannot be made as an unequivocal statement since variation in the natural course of the disease may well have been more responsible than the treatment. The use of cortisone for a year without complications is perhaps worthy of note.

The development of purpura was an unexpected complication but it has been described in leukemia as part of the "hypersplenism" picture.[17] While the purpura seemed to improve somewhat to an increased dose of cortisone, the response was transient. It is known that the response of thrombocytopenic purpura to steroid therapy may not be constant or permanent.[18] It nevertheless is of interest that the purpura developed while the patient was on cortisone. It was with some trepidation that splenectomy was finally advised, but it seemed the only "out,"[19] aside from doing nothing, and the patient was still a good operative risk. The immediate response to surgery was more than had been expected. With the good platelet response, it was hoped that there might also be a beneficial effect on the hemolytic anemia since it too can be treated by splenectomy.[9, 16, 20, 21]

The cause of the final flare-up of the mesenteric lymph nodes and the development of mesenteric thrombosis is unknown. The leukemia itself, loss of the spleen, the surgery, and the cortisone all may have played a part. The relative importance of each is unknown. We can only report the terminal events and hope that explanations will be forthcoming as our understanding of leukemia is improved.

SUMMARY

A case of chronic lymphatic leukemia with secondary hemolytic anemia was reported because of the various types of therapy used, including blood, nitrogen mustard, irradiation of the spleen, ACTH, cortisone, and finally splenectomy. The response to ACTH and cortisone was dramatic and was maintained for 18 months, following which thrombocytopenia with purpura developed although there was no diminution in effect of the steroids on the hemolytic process. The splenectomy was successful surgically and hematologically, but the patient died four weeks postoperatively from mesenteric thrombosis and a flare of his leukemia as manifested by rapid enlargement of the mesenteric lymph nodes in his final month of life.

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BREAST LESIONS

A Review and Classification

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This study is based on the breast lesions encountered at The Memorial Hospital during the five year period 1945 to 1949 inclusive. The material embraces a total of 375 distinct lesions. Diagnosis in each case is based on histological study.

The lesions of the breast are many and varied, and no universally accepted classification has been proposed at the present time. Confusion and ambiguity exist in the nomenclature, both in the etiology and in the cellular origin of many of the lesions.

A major factor in this diversity of opinion is the constantly changing status of mammary tissue. There is a wide fluctuation in the functional activity and in the morphology of the normal breast, which is subject to physiological hypertrophy and involution; changes which affect both the parenchyma and the stroma. In disease, these changes may become accentuated and erratic. These variations may involve the breast in whole or in part, and more than one change may be present in the same breast. Many lesions, such as lobular hyperplasia and fibro-adenoma, show evidence of perversion or normal physiological changes to a marked degree, while neoplasms are profoundly altered in their behavior and morphology by these factors, of which the effect of pregnancy on mammary carcinoma is a striking illustration. An appreciation of these factors helps to explain the almost infinite variation that breast lesions may assume.

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Of the lesions in this series there are 108 benign neoplasms. These are considered under the headings of Duct Papilloma and Fibro-adenoma.

DUCT PAPILLOMA

There is a total of 22 breast lesions in the series which are classified as duct papillomas. A variety of names are used to indicate these lesions and include adenoma, duct papilloma, proliferating cystadenoma, adenocytoma, intracanalicular cystadenoma, papillary cystoma, villous papilloma, and intracystic papilloma. These tumors are usually solitary, but in an appreciable number of cases may be multiple. Characteristically, the lesion is located in the larger ducts under the nipple and in the central zone of the breast, the peak incidence occurring between forty and forty-five years of age, but they have occurred shortly after puberty as well as long after the menopause. Parity seems to have no influence on the incidence.

The tumors vary in size from microscopic lesions up to several centimeters in diameter. They are encapsulated growths that contain serous or sanguinous fluid which bathes the epithelial tufts, this explaining the frequency of bleeding from the nipple as a leading symptom in the disease. The tense, unopened cyst, is often of a bluish or purplish hue, and its cavity may be partially or wholly filled by the papilloma. Quite often the tumors appear in dilated, tortuous ducts rather than in typical cystic structures. The papilloma is usually attached to the cyst wall at its base only, and a delicate, branching connective tissue framework transmits blood vessels to the epithelial covering.

Microscopically, the arborescent, fibrous stalks usually exceed the epithelial elements in amount. The epithelium is one or two layers in thickness, orderly in arrangement, and the outer layer is composed of tall columnar cells with a secretory border. The nuclei are regular in size and staining reaction, and mitotic figures are scarce.

Frequently, however, the benign papilloma presents a more active picture, and proliferation, with frequent mitotic figures, may be marked. The point at which a benign papilloma approaches malignancy is often not sharply defined. Two lesions in the present series are placed in the benign category with some trepidation. The usual criteria of malignancy are: invasion of tissue through the basement membrane by epithelial growth, secondary attachment of the papilloma to the cyst wall, minimal or absent stroma, and areas of necrosis. Many benign papillomas ultimately undergo malignant transformation. This propensity is reflected in the attitude of some pathologists who classify this lesion as a grade I adenocarcinoma.

FIBRO-ADENOMA

Eighty-six lesions in the series are classified under the general heading of fibro-adenoma. Included in these tumors are 42 pericanalicular fibro-adenomas and 36 intracanalicular fibro-adenomas; 6 lesions are classified simply as fibromas. There are 2 cystosarcomas phyllodes in the series. Eight lesions of the male breast known as gynecomastia are also included.

The pericanalicular and intracanalicular fibro-adenomas are circumscribed fibro-epithelial overgrowths which are usually limited by a distinct capsule. Some fibro-adenomas are difficult to distinguish from certain types of lobular hyperplasia. The peak incidence of these tumors is in the age group 20 to 25 years. Occasionally they are found shortly after the onset of puberty and following the climacteric, parity seems to have little effect on the incidence, and etiologically, estrogenic stimulation is an important factor in their development.

Multiple pericanalicular and intracanalicular fibro-adenomas do occur, but the lesion is usually solitary. They may appear in any part of the breast, but are more frequent in the upper outer quadrant. The maximum size attained by these tumors is 5 to 6 cm., and many remain stationary for long periods after reaching a size of 2 to 3 cm. The tumor is responsive to physiological stimuli in the same manner as normal breast tissue, thus enlargement of the tumor may be rapid in pregnancy. Malignant change is a most unusual happening.

Macroscopically, fibro-adenomas are seen to be sharply circumscribed growths which are easily separated from the surrounding breast tissue. They are firm, pinkish or grayish-white, spherical or oval tumors. On section the cut surface is somewhat convex, slightly granular, and homogeneous. Lobules and papillary excrescences may be noted in the intracanalicular variety, and cystic spaces may be present.

Microscopically, the pericanalicular fibro-adenoma appears as an exaggeration of the hypertrophy seen in the adolescent breast. The acini and ducts are more numerous and are surrounded by a stroma of fibrous tissue. Reduplication of the epithelium is often present, and an occasional mitotic figure may be seen. The stroma is formed by proliferation of the normal perilobular and periductal connective tissues, the interlobular connective tissues taking no part in the process. The stroma shows much variation in density, and the capsule is formed by a definite sheath of dense fibrous tissue.

The intracanalicular fibro-adenoma presents a distinctive appearance microscopically. There is seen a remarkable proliferation of connective tissues which projects into the ducts in the form of polypoid masses. A dilated duct often appears to be crowded with masses of fibrous tissue, each covered by a layer of epithelium invaginated from the duct wall. The section often gives the appearance of branching slits lined by epithelium. The connective tissue stroma of the intracanalicular fibro-adenoma is usually very loose in texture and often has a myxomatous appearance; hence these tumors are often referred to as myxomas. It may be noted here that frequently gradations are soon between the pure pericanalicular and the pure intracanalicular fibro-adenoma. Both types of proliferation may be seen in the same tumor.

The cystosarcoma phyllodes or giant intracanalicular fibro-adenoma is a variant of the intracanalicular fibro-adenoma which is usually found near the time of the menopause. These tumors are slow growing and may reach an immense size. On section, cystic spaces are found into which project fibrous polypoid masses. Microscopically, myxomatous connective tissue predominates. The polypoid fibrous structures are covered by layers of columnar or cuboidal connective tissue.

Cystosarcoma phyllodes is usually considered to be a benign lesion. However, the connective tissue frequently shows areas of increased cellularity wherein are seen pleomorphism, frequent mitotic figures, and variation in staining reactions. Here a sharp differentiation between a benign lesion and a true sarcoma may be extremely difficult.

For the present purpose a fibroma of the breast is considered to be a form of fibro-adenoma in which the epithelial elements have been crowded out and replaced by connective tissue.

GYNECOMASTIA

In the series of breast lesions are 8 lesions of the male breast which are classified as gynecomastia or fibro-adenoma of the male breast.

In this lesion there is a nodular enlargement of the male breast, and microscopically, there is a growth of the mammary ducts and the periductal stroma. The epithelium is hyperplastic and papillary projections may form. A periductal infiltration of chronic inflammatory cells may be present, including lymphocytes, plasma cells, large mononuclear cells, with occasional eosinophile and polymorphonuclear cells.

These lesions appear to be dependent on a hormonal imbalance, and may be associated with testicular teratomas or hypophyseal adenomas. Trauma is often a factor in accelerating the rate of growth in the breast, but there is doubt that it is a primary cause.

LOBULAR HYPERPLASIA

Of the remaining benign lesions, 64 are classified as lobular hyperplasia. Fifty-five of these are of the non-cystic type, eight are of the cystic type, and one case is classified as sclerosing adenosis.

The term lobular hyperplasia, first proposed by Smith[1] in 1940, with its divisions of cystic and non-cystic, both of which may be localized or generalized, embraces all of those conditions formerly referred to by a host of terms among which are chronic mastitis, chronic interstitial mastitis, cystic disease of the breast, chronic cystic mastitis, diffuse fibro-adenoma, cystadenoma papilliferum, involution cysts, abnormal involution of the breast, adenosis, Schimmelbusch's disease, and many others.

There is much disagreement as to the true nature of this disease. It is regarded by some as inflammatory because of the frequent lymphocytic infiltration. Others regard it as a neoplastic disease. Still other observers think of it as a perversion of involution. The basis of the inflammatory theory is the lymphocytic infiltration, a finding that is always present in the involution following lactation and which is also often seen in senile involution. It is difficult to consider the disease as a neoplasm as there is no true tumor. Epithelial hyperplasia may, at times, suggest a neoplastic process, but a similar type of hyperplasia occurs in benign hyperplasia as seen in the prostate and in the thyroid gland.

Breast tissue, parenchyma and stroma, is greatly influenced by external stimuli, and these factors may result in hyperplasia which is succeeded by involution. Normally an equilibrium is maintained between the various components of breast tissue. In lobular hyperplasia all of the changes that occur in a normal breast are seen, but the normal proportions are lost, and hyperplasia may affect the parenchyma, the stroma, or both together in varying proportions, while succeeding involutional changes may likewise proceed in an erratic manner. The changes seen in lobular hyperplasia, including the epithelial hyperplasia and atrophy, cyst formation, and fibrous overgrowth, are best explained on this basis. The consensus of modern opinion appears to favor this view.

Grossly the lesions of lobular hyperplasia vary widely. The tissue is firm and rubbery in consistency, yellowish-white in color, and is not encapsulated or shaply circumscribed. The cut surface often reveals raised pink and gray dots of newly-formed glandular tissue, dilated ducts often containing a putty-like material that may be expressed as a cast of the duct. Cysts of varying size and number are often seen, which when unopened are bluish in color due to reflection of bluish light from the tense cyst wall, the color disappearing after rupture. In the non-cystic form of lobular hyperplasia minute cysts may be present, and it is usual to apply the term cystic to those cases in which cysts of 1 cm. or more in diameter are present. The cut surface presents an ill-defined area rather than a lump as seen in carcinoma, and the stony hardness, the grittiness to the knife, and the yellow streaks and specks characteristic of infiltrating carcinoma of the breast are not seen.

There is also a great variation in the microscopic picture in lobular hyperplasia. The epithelium in the breast ducts forms multiple layers and gives rise to papillary processes. Epithelial budding and spilling may mimic the invasiveness of infiltrating carcinoma. Atrophy of the epithelium may be a feature, the cells lining an acinus may become more and more indistinct, the acinus finally becoming replaced by fibrous tissue. Persistent epithelium may be cuboidal or columnar and contain an increased amount of eosin-staining cytoplasm, this type is often seen lining the cystic spaces. The smaller ducts and acini may assume the appearance of sweat glands. Round cell infiltration about the ducts and acini is frequently seen.

Sclerosing adenosis or adenomatosis, also known as fibrosing adenosis, is a relatively uncommon variant of lobular hyperplasia. The condition is usually seen in the central zone of the breast in association with the larger ducts, and grossly the involved area appears as a dense, hard, often multiple lesion that may have practically all of the characteristics of an infiltrating carcinoma. The ordinary variety of lobular hyperplasia is present in the adjoining breast tissue. Microscopically, the lesion may closely resemble carcinoma, since a dense, fibrous, connective tissue surrounds solid isleands and cords of glandular epithelium, about which a basement membrane is absent or ill-defined, the cells being compressed by the heavy fibrous overgrowth. Scattered throughout the lesion are acinar structures of varying size. Careful study reveals that the cords and strands of epithelium are epithelial buds that have been pinched off by the proliferating connective tissue, and the epithelial cells, showing no mitotic figures, are uniform and of medium size.

Of great practical importance is the differentiation of lobular hyperplasia from mammary carcinoma. The intraductal type of carcinoma frequently shows areas of central necrosis, a finding not seen in lobular hyperplasia, and minute papillomas are unusual in carcinoma but are common in lobular hyperplasia. In lobular hyperplasia the cells are benign in appearance, mitoses are infrequent, and the cells are more uniform, in marked contrast to carcinoma in which mitotic figures occur frequently and pleomorphism is usually marked.

It must be stressed that the differentiation of lobular hyperplasia from mammary carcinoma cannot be made from one feature alone; only by a summation of all the findings, gross and microscopic, can the true diagnosis be established.

Fat Necrqsis

Three of the lesions in the series are classified as fat necrosis. Mammary fat necrosis is a condition that is frequently preceded by trauma, but in many cases no such history can be obtained. Fat necrosis grossly forms a small, dense nodule that often resesmbles a carcinoma, and the appearance is enhanced if cholesterol and calcareous material accumulates in the lesion. The lesion consists of a chronic granulomatous type of nodule which is stellate or lobulated in shape with surrounding fibrosis. Microscopically, the condition is characterized by fibrous tissue, lymphocytes, and foreign body giant cells, together with foam cells which are lipoid macrophages. Spaces formed by cholesterol crystals are often seen in the mounted section, and areas of calcification are not uncommon. The parenchyma of the breast is not involved in the process.

Plasma Cell Mastitis

This lesion is rare and only one example occurs in this series. The condition has a rapid onset with marked tenderness and a puriform discharge from the nipple, and resolution is very slow, an indurated nodule persisting indefinitely. The lesion is a periductal mastitis arising in association with dilated ducts beneath the nipple, probably a chemical reaction due to retained secretion. Clinically, the lesion has many of the characteristics of mammary carcinoma. Examination of the gross specimen reveals a mass of radiating, dense, fibrous tissue strands with dilated ducts containing creamy, puriform material, and microscopically, the lesion is one of subacute inflammation with plasma cells predominating, the preponderance of plasma cells being characteristic. Epithelioid cells and foam cells are commonly present and may stimulate tuberculosis.

Tuberculosis

Included in the series is one tuberculosis lesion. Tuberculosis breast lesions are rare, the infection entering the breast by retrograde spread through the lymphatics or by direct spread from tuberculosis osteomyelitis of the underlying ribs. It is usually secondary to tuberculosis cervical adenitis or to pulmonary tuberculosis.

Grossly the lesion consists of a chronic induration of the breast tissue which has a tedency to break down with sinus formation.

Microscopically, the lesion is characteristic. This consists of central caseation with surrounding epithelioid cells, giant cells of Langhan's type, and lymphocytes, surrounding which is a layer of fibrous tissue. The lesions are usually multiple.

Malignant Lesions

Of the 375 breast lesions in the series, 189 are classified as malignant tumors, 188 of these are carcinomas, while there is only one sarcoma.

Carcinoma

Included in the 188 breast carcinomas are 166 lesions diagnosed by tissue sections and 22 by aspiration biopsies of the breast.

The 166 lesions in which tissue sections are available are herewith divided into two categories; viz., extraductal carcinoma and intraductal carcinoma. A total of 131 lesions are classified as extraductal, and 35 as intraductal.

The extraductal lesions are made up of the following subtypes:

1. Infiltrating, spehroidal cell carcinoma	109	
2. Infiltrating adenocarcinoma	21	
3. Medullary carcinoma	1	
	131	131

The intraductal carcinomas are divided into the following subtypes:

1. Comedo carcinoma	32	
2. Papillary adenocarcinoma	1	
3. Mucoid carcinoma	2	
	35	35
		166

This classification is based on the predominant feature in the different tumors, but it must be appreciated that there is no hard and fast boundary line between the various types of mammary carcinoma. The broad divisions of extraductal and intraductal are somewhat arbitrary. The intraductal growth may break out of the ducts and assume all of the characteristics of an extraductal tumor. However, this division has some justification in the gross and microscopic appearances as well as in clinical behavior A carcinoma that is intraductal tends to follow a less malignant and slower course, metastases occurring much earlier in the tumor that is extraductal from the beginning. Frequently a predominately undifferentiated spheroidal cell carcinoma may be fairly well differentiated at some points and approach the highly cellular medullary type in others. It will thus be realized that there is no absolute, exact classification possible and that there is considerable overlapping of the different types.

INFILTRATIVE SPHEROIDAL CELL CARCINOMA

The commonest occurring carcinoma of the breast is the infiltrative spheroidal cell carcinoma. This lesion has been variously designated as carcinoma simplex, lobular carcinoma, and scirrhous carcinoma. This neoplasm metastasizes early by lymphatic spread to the axillary and clavicular lymph nodes. In the present series axillary nodes were involved in 58 casse, representing slightly more than 60% of the total 96 lesions in this subgroup.

Grossly, infiltrative spheroidal cell carcinoma consists of a tumor that is firmly adherent to the surrounding tissues, sending radiating processes out into the fat, appearing densely hard to palpation, and when incised, cuts with a gritty, calcareous sensation, not unlike that experienced in cutting an unripe pear. The cut surface is concave due to retraction of the fibrous tissue, grayish in color, and pale yellow dots and specks may be seen.

Microscopically, the normal breast tissue is seen to be replaced by small masses, strands, and columns of malignant cells, often compressed by fibrous tissue into polygonal and distorted shapes. Lymphocytic infiltration is frequent, and mitotic figures may be infrequent. The proportion of fibrous tissues varies greatly but is usually very dense and abundant. Invasion of lymphatics and veins is frequently seen.

INFILTRATIVE ADENOCARCINOMA

This lesion is usually considered to be of a lower degree of malignancy than the spheroidal cell carcinoma. However, this is not borne out by the present series of 21 cases in which the axillary lymph nodes are involved in 11, representing slightly more than 73%. The term is used here to denote the well differentiated carcinoma with marked glandular formation, the cells bearings a close resemblance to those of normal ductal and acinar epithelium. Mitotic figures are fairly common, and the fibrous tissue reaction approximates, but is not quite so well marked as in the spheroidal cell carcinoma. In all other details these lesions are similar.

MEDULLARY CARCINOMA

This term has been applied to several types of breast carcinoma but is here used to denote a highly cellular, rapidly growing tumor with little or no fibrous tissue reaction. The tumor is soft, spreads rapidly, and metastasizes to the axillary lymph nodes, and ulceration of the skin occurs early. The course of the disease is comparatively rapid.

Microscopically, masses of large, round, pale epithelial cells are separated by a scanty and delicate stroma. Mitotic figures are numerous, and degeneration and necrosis are common in such tumors.

Two lesions in the present series are herewith classified as medullary carcinoma.

INTRADUCTAL CARCINOMA

A total of 35 mammary lesions are placed under this heading. These are composed of 32 comedo carcinomas, 1 papillary carcinoma, and 2 mucoid carcinomas. As a group intraductal carcinomas are much slower in their rate of growth than the extraductal growths. Often they remain circumscribed by the mammary tubules for long periods before breaking out into the stroma of the breast. This characteristic contrasts with the extraductal carcinomas which invade the breast stroma from the beginning. It must be appreciated that intermediate types frequently occur.

COMEDO CARCINOMA

In this form of intraductal carcinoma,

plugs or casts of carcinomatous cells may be expressed from the severed ducts when the tumor is sectioned, this property giving rise to the term "comedo." These tumors are of relatively slow growth and often a number of years may elapse before the growth attains a large size. Metastases occur later, and hence this tumor offers a more favorable prognosis than in the extraductal growths. This lesion frequently occurs in a breast which contains areas of lobular hyperplasia. There are 32 comedo carcinomas in the present series. Axillary lymph node metastases are seen in only three of these cases, an incidence of less than 10%. This is in striking contrast to the incidence of lymph node metastases in the extraductal neoplasms.

Comedo carcinoma occurs most frequently in the central zone of the breast, often beneath the nipple, but it may appear in any area.

Grossly, the comedo carcinoma has not the stony hardness found in the spheroidal cell carcinoma. The ramifying, dense connective tissue is not seen, and the tumor is less sharply defined than the infiltrative carcinoma. Mobility of the tumor is late to disappear. The characteristic tumor casts of the ducts appear on the cut surface when slight pressure is applied.

Often the diagnosis between lobular hyperplasia and comedo carcinoma is not possible by gross examination and the diagnosis must be made with the microscope. Microscopical sections reveal the ducts, which vary in size and shape, to be lined by many layers of cells, and some of them are completely filled by the proliferating epithelium. The tumor cells may show no marked malignant characteristics, often containing small, dense nuclei, and a slight degree of pleomorphism with an occasional mitotic figure may be seen. A loss of polarity in the cellular arrangement is often a prominent figure, and central necrosis is common in the tumor-filled ducts. On careful search the epithelium in one or more places may be seen to invade the surrounding fat and fibrous tissue, a feature which, when present, establishes the diagnosis of malignancy beyond question. The papillary outgrowths of epithelium within the ducts usually seen in lobular hyperplasia is seldom seen.

Papillary Adenocarcinoma

One lesion in the series is classified as a papillary adenocarcinoma.

This malignant lesion arises in a dilated cystic duct, and it often represents malignant change in a benign intraductal papilloma. The tumor usually occurs in the central zone of the breast, causing a sanguinous discharge from the nipple. Rapid growth is frequently seen with this type of growth, which may reach a diameter of 10 cm. or more. On gross examination the tumor is soft and pliable, due to the absence of fibrous tissue.

Microscopically, the epithelium is arranged in stalks, folds, and lace-like patterns. Acinar structures are seen which are similar to but larger than those in the benign papilloma, and a fibrous stroma is almost non-existent. The cells are often many layers in thickness with frequent mitotic figures and marked pleomorphism. A distinguishing feature is the attachment of the growth to the ductal margins with indications of invasion. At times the distinction between benign and malignant papillomas of the breast is a most difficult one to make. This is reflected in the attitude of a number of pathologists who consider the apparently benign papilloma to really be a malignant papilloma of the lowest grade of malignancy.

Mucoid Carcinoma

This rather uncommon tumor is one of the slower growing carcinomas that may be present for years, and reach a large size. Metastases are late in appearing and this tumor offers a relatively good prognosis.

The term "mucoid carcinoma" is used here to designate the circumscribed form in which the gelatinous material occurs throughout the tumor, and it may be noted that mucoid degeneration may occur in the infiltrative type of mammary carcinoma. When this occurs the growth is much slower in these areas, this appears to be due largely to inadequate nutrition which is a result of the surrounding mucoid secretion. In the typical mucoid carcinoma the tumor often appears to be soft and cystic, the mucoid material being very soft and semi-fluid.

Microscopically, the epithelium has malignant characteristics and may be arranged in an acinar or papilliferous fashion. The cells contain varying amounts of secretion and signet ring forms may be seen. The gelatinous propensities are an inherent property of the malignant cells and gelatinous secretion is present in the metastases from this tumor.

Carcinomas—Unclassified

An additional 22 cases of carcinoma of the breast are diagnosed by aspiration biopsy, and tissue sections are not available. The malignant nature of the lesions is established but the type of carcinoma is undetermined. These cases represent lesions that were inoperable and cases which did not receive treatment at this hospital.

Sarcomas

There is one mammary sacoma in the series, the lesion representing sarcomatous change occurring in a benign intracanalicular fibroadenoma.

Sarcomas may arise in a pre-existent fibroadenoma or may appear without this antecedent. Any of the mesodermal elements in the breast may undergo sarcomatous change and fibrosarcomas, leiomyosarcomas, liposarcomas, etc., rarely occur. The growth is usually of the fibrous spindle cell type.

These tumors may be circumscribed or infiltrating. They are usually composed of solid, fleshy tissue which grows in interlacing bands which often enclose softer, myelomatous material.

Microscopically, the mammary sarcoma is composed of interlacing bands of fibro-spindle cells often arranged in a whorled fashion. Occasional mammary tubules are seen. The sarcoma cells show marked pleomorphism with dense, bizarre nuclei, and mitoses are numerous.

Summary

The material for this paper consists of the mammary lesions observed at The Memorial Hospital during the five year period 1945 to 1949 inclusive. A reclassification of the 375 lesions is presented based on histological examination of the microscopic sections contained in the hospital files. The diagnostic criteria of the various lesions are reviewed.

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CYSTADENOCARCINOMA OF OVARY

Twenty Years Survival After Known Peritoneal Metastases

A Case Report

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It is a well-known fact that serous and pseudomucinous tumors of the ovary are notorious for their unpredictable and often bizarre behavior. This has been substantiated so often that their vagaries are accepted by physicians who are in a position to follow such cases and note these departures. A case of papillary cystadenocarcinoma of the ovary was observed recently in the Memorial Hospital that not only exhibited an unusual site of metastatic spread but has, in addition, survived twenty years after known peritoneal implants were observed.

A. B., a 72 year old white female, was first seen in the out-patient department in October, 1952. Her complaints at that time were confined to her sternum and consisted of a dull, boring pain associated with swelling and redness of the overlying tissues in its distal third. She had had this complaint for one month and felt that the pain had progressed rapidly in the week prior to being seen.

Examination revealed a thin, elderly white female of approximately her stated age. There was no pathology demonstrated in the examination of the head and neck regions. The heart and lungs were normal to auscultation.

In the lower third of the sternum was a firm, tender tumor measuring 6 x 3 x 2 cms. The skin over the tumefaction was tense, red and shiny.

Abdominal examination was essentially negative. There was an old, well-healed suprapubic incision the result of "having her organs removed" twenty years previously. No masses were palpated.

Pelvic examination revealed a moderate cystocoele and rectocoele. A small atrophied cervix was present with a small erosion of the posterior lip. Bimanual examination failed to reveal any pelvic pathology. The rectum was negative. The cervix was biopsied and Papanicolou smears were taken of the cervix and vagina. These studies were subsequently reported negative for tumor.

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*Chief Surgical Resident, Memorial Hospital.

On 10/14/52 X-ray examination of the lungs and sternum elicited the following information: ". . . the lung fields are clear and well aerated. There is evidence of sclerosis of the aorta. Examination of the sternum shows a loss of bone density in the lower third. This is at the level of the xiphoid process, slightly above the junction of the body. This change is very minimal . . . this area should be rechecked by serial examinations. . ."

The patient was at this point lost to follow-up for approximately 3 weeks before contact was again reestablished. A repeat x-ray examination of the sternum revealed ". . . evidence of destruction of the lower end of the sternum slightly more pronounced than in October. Apparently, there is a soft tissue mass overlying this portion of the sternum. The destruction is not sharp and clear-cut and there is some calcification visible around this area, probably in costal cartilages of the ribs."

On 11/19/52 an incisional biopsy was done. The histological report revealed ". . . clumps of atypical, anaplastic epithelial cells lying in connective tissue stroma. There is a slight resemblance to squamous epithelium in this tissue . . . suggest the possibility of lung as source of the primary tumor."

At this time the patient reported a change in her bowel habits which on previous interrogations had apparently been normal and regular. Sigmoidoscopy revealed no intrinsic pathology in the distal 25 cms. of the colon. On 12/2/52 a barium enema showed an obstructing lesion in the sigmoid. ". . . a rather severe deformity of the lumen was encountered in the middle of the sigmoid loop. This deformity was persistent and . . . indicates malignant involvement of the colon. I cannot determine whether it is primary or secondary."

On 12/15/52 a barium enema study was done again and surprisingly ". . . the sigmoid showed a much better appearance. The obstruction, which was suggested previously, has disappeared. This apparently was an inflammatory lesion of the sigmoid rather than a malignancy." On the same date, a repeat x-ray of the sternum ". . . shows a soft tissue mass surrounding the area of destruction in the sternum. This mass is much more prominent in the lateral view than it was previously indicating growth. . . I do not recognize any distinct pulmonary tumor."

Laboratory studies obtained up to this time were as follows:

RBC 2.35; Hb 7.0; WBC 6,150 with 80% polymorphonuclears. Urinalysis: pH 7.0; S.G. 1.012; alb. slight trace; sugar—negative; microscopic—1 -|- epithelial cells; RBC 0-1, WBC 8-12. Total Proteins, 7.03. A/G ratio, 2.1 — 1. B.U.N. 20.5; fasting blood sugar, 128. Kline—negative Electrocardiogram—within normal limits.

On 12/19/52 cystoscopy was done and a mild cystitis visualized. Retrograde pyelography revealed ". . . the right kidney to be rather large with a large renal pelvis. The right ureter does not show any visible calculous formation. A small uretero-pelvic stricture is suggested on the right side. The left kidney is a double kidney. Two ureters are present almost all the way down to the bladder. A calculous is present in the upper pole of this double kidney."

During the course of the investigations in search of a primary tumor it was thought advisable to irradiate the sternal tumor in order to obtain, if possible, regression of the tumor and some measure of palliation. A full course of external irradiation within the limits of skin tolerance was administered and upon its completion there was a definite improvement in the condition of the patient. She gained weight slowly, became more cheerful and had much less pain. In addition, there occurred a gradual regression in the size of the sternal tumefaction.

At this time the original operative report was uncovered. It noted that " . . . 1½ quarts of free fluid were present in the peritoneal cavity. "Each ovary measured approximately 12 cms. in diameter. A bilateral ovarian carcinoma was present which, in the right ovary, had ruptured. Numerous implantations were present in the base of the pelvis which were responsible for the accumulation of free fluid."

Shortly thereafter, microscopic sections of the original ovarian tumor were obtained and it was the opinion of the pathologist that the tumor histologically, was a cystadenocarcinoma.

On 2/11/53 it was noted on follow-up examination that the patient had developed a large node in her left axilla. This was excised. The histological report follows: ''Histological examination reveals lymphoid tissue which has been almost entirely replaced by metastatic tumor composed of cuboidal type epithelial cells varying from one to several layers deep, having large, somewhat atypical nuclei and arranged in a papillary fashion on a fine connective tissue core. Comparison of this tumor with restained sections taken in 1933 from an ovarian tumor present in this patient reveals a marked similarity in appearance. I am now of the opinion that the original lesion in the ovary of this patient is that of a cystadenocarcinoma and that the present material taken from the axilla represents a lymph node metastases from this primary tumor.''

The patient, at the present time, feels well, eats well and has no pain. Her sternal tumor has almost completely disappeared.

Although this case represents an unusually bizarre behavior of an ovarian cancer F. W. Stewert recently reported two similar cases that have survived 33 and 35 years respectively.[4]

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BRONCHOGENIC CARCINOMA*

Report of 149 Cases

Emerson Y. Gledhill, M. D.,
Wilmington, Del.

This series of cases represents all the cases of carcinoma of the lung seen and treated on the Tumor Service of the U. S. Public Health Service Hospital, Baltimore, Maryland, from the formation of this Service in 1939 up until July of 1948. At the present time therefore, they represent a determinate five year group of cases. The surgical handling of the cases was in the hands of Dr. William H. Reinhoff, Dr. Ralph R. Braund, and the author. Nine of the total excisions were performed by Dr. Reinhoff and three by the author. All work-up and diagnostic studies were performed by the Tumor Clinic Staff and the cases represent a completely unselected group, 70 of which were locally referred and the remainder transferred from other Public Health Service Hospitals throughout the country. No cases were refused admission for any reason, and terminal care was provided those cases who required it. All cases except one were male, due to the type of patient beneficiary treated by the Public Health Service.

The youngest case was 22 years of age and the oldest 76. The cases were distributed according to decades as follows:

20-30— 1
30-40— 3
40-50—42
50-60—61
60-70—39
70-80— 3

The time period from earliest symptoms to recognition of the need of definitive treatment and admission to our hospital varied from one week to four years, with an average of approximately 9 months. The presenting symptoms of three cases were non-pulmonary and due to intracranial metastatic disease. In one case the initial episode was the finding of a supraclavicular metastatic mass. One case only was completely asymptomatic, which seems unusual in a group of men exposed to regular physical examinations and in most cases regular routine chest roentgenograms.

The carcinoma presented on the right side in 82 cases; on the left in 63 cases; bilaterally in 2 cases; and 2 cases were questionable as to the primary site.

The methods used in securing a proved histological diagnosis consisted of:

1. Bronchoscopic examinations with biopsy or cell examination of smears or bronchial washings.
2. Aspiration Biopsy.
3. Biopsy of Metastatic Lesions.
4. Exploratory Thoracotomy.
5. There were 19 cases in the group that were

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*Director, Carpenter Memorial Clinic, Memorial Hospital.

confirmed only at Post-Mortem Examination. One of these cases was unsuspected and considered as a primary brain neoplasm until autopsy.

A total of 102 bronchoscopies were performed on 87 of the 149 cases. These led to a positive diagnosis of carcinoma in 43 cases.

Aspiration biopsy was performed 75 times in 56 cases and yielded positive results in 45 cases. Aspiration biopsy yielded positive results where bronchoscopy was negative in 20 cases.

Bronchoscopic studies yielded positive diagnosis in 49.4% of the cases in which it was used as a diagnostic procedure, while aspiration biopsy yielded an 80.3% positive diagnosis rate. It should be stated however, that in general, aspiration biopsy was used for the most part but not exclusively in those cases with large tumor masses on x-ray examination and those considered probably inoperable.

Biopsy of metastatic lymph nodes or masses was positive in 45 instances and was the only definitive diagnosis in 36 cases.

Exploratory thoracotomy was performed for diagnosis where other methods had failed, in 13 cases.

The histological type of tumor found in this series of cases was as follows:

Epidermoid carcinoma	71
Adenocarcinoma	24
Undifferentiated carcinoma	24
Oat cell carcinoma	12
Anaplastic carcinoma	10
Alveolar carcinoma	2
Transitional cell carcinoma	1
Spindle cell carcinoma	1
No diagnosis	4

The therapeutic approaches used in this series included surgery, x-ray therapy, and a combination of the two. Preoperative x-ray therapy was used in only one instance.

Total number of operations	36
Exploratory Thoracotomy for diagnosis	13
Unresectable tumors	22
Lobectomy	2
Total Pneumonectomy	12

Thirteen cases were given postoperative palliative x-ray therapy. The type of therapy given was 250 kv. opposing port treatments, carrying the tumor dose to approximately 2400 r. in 24 days. In general this type of treatment yielded good results with regard to temporary pain relief and control of hemoptysis and shrinkage of the primary tumor but no cures were recorded. Average length of life following this type of treatment was 7 months, with the longest survival 22 months.

250 kv x-ray therapy as the only type of therapy was used in 89 cases. In these cases there was present conclusive evidence of inoperability. Radon seed implantation was used in only one instance in the treatment of a metastatic lymph node, and once implanted into the primary tumor at the time of thoracotomy.

Total number of cases receiving palliative x-ray therapy as only form of treatment	89
x-ray therapy to primary tumor	81
x-ray therapy to metastatic sites	8

At the present writing, of the 149 cases only two are known to be living and well and free of disease slightly over 5 years from the time of total pneumonectomy by the author.

At the three year period following the completion of the study there were:

131	patients dead
18	living
11	with disease
5	with disease and metastases
2	without disease

Of the patients who died autopsy examination was performed in 85, or 54% of the cases.

SUMMARY AND COMMENTS

This series of cases represents a closely followed-up group treated over approximately a 10 year period and followed for a minimum of 5 years. The final result is very disappointing. Only 2 cases living, well and free of disease after 5 years. Both of these are the result of total pneumonectomy. Earlier case finding, earlier operative intervention, and earlier pneumonectomy with extension of this procedure to include mediastinal lymph node dissection will offer increased hopes in the cure of this disease. Our efforts along those lines should be increased, as statistically this disease is apparently increasing and is now one of the commonest types of cancer.

Editorials

DELAWARE STATE MEDICAL JOURNAL

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Special Session of A. M. A. House of Delegates

The House of Delegates of the A. M. A. was called to a special session in Washington, D. C. on March 14 by the Board of Trustees. The purpose was to consider the President's Reorganization Plan No. 1 of 1953. This plan would elevate the Federal Security Administration to departmental status. The new Department, presumably under Mrs. Oveta Culp Hobby, would be known as the Department of Health, Education and Welfare. Under her would be a Special Assistant who would be "a recognized leader in the medical field with wide non-governmental experience." He would be an M. D. and his duties would include reviewing all the health and medical problems in the Department and advising the Secretary with respect to the improvement of such programs and with respect to necessary legislation in the health and medical fields.

President Eisenhower addressed the House briefly and effectively. He extended a warm welcome and stated that "we have faith that Americans want to do the right thing and that the medical profession will provide the kind of services our country needs better with the cooperation and the friendship of the Administration rather than by its direction or any attempt on its part to be the big 'Pooh-Bah' in this particular field."

Senator Robert Taft then addressed the House. He explained that the various agencies brought into this new Department were all alike in one respect. They were agencies where Federal action and control should be secondary to state and local obligation. He further explained that it should be a Cabinet department rather than a separate agency, because the work should be coordinated with and subordinated to the work of other Departments in the Cabinet. If set up as a separate agency directly under the President there would be a tendency for it to expand out of proportion to its importance in relation to other departments. He said the new department would "build up a philosophy to protect the medical profession for all time to come against intrusion of socialized medicine or anything else compulsory in the American free enterprise system."

Congressman Walter Judd of Minnesota also spoke. He emphasized Senator Taft's remarks in respect to the fact that so many individuals in policy making positions were frozen by civil service and could not now be removed. This made it difficult for the Administration to carry out its plans and promises effectively. They were stymied by workers carried over from the past 20 years. Until many of these individuals are replaced by others willing and anxious to carry out the policies of the new Administration the will of the voters who elected that Administration could not be carried out. This applied particularly to Mrs. Hobby's agency and the proposed new Department. We were given the assurance that the problem would be met.

Dr. Louis Bauer, President of the A. M. A., then spoke. He stated that for almost 80 years the A. M. A. had advocated an independent Department of Health with an M. D. in the Cabinet. The feeling had recently been modified to the extent that it was felt that the cabinet member need not necessarily be an M. D. There was also some feeling recently that such an independent Department of Health might not be too desirous, after all; one reason being that under an Administration unfriendly to organized medicine it might boomerang. However, the official policy of the A. M. A. has not changed since it was reaffirmed last December in favor of an independent Department of Health. Dr. Bauer stated that this Reorganization Plan, which would unquestionably be passed by Congress in the near future, might be considered as a step toward that goal.

Throughout the session there was evidenced a willingness and desire on the part of the Administration to work with the Association. This was expressed again by Dr. Dwight Murray, Chairman of the Board of Trustees, when he gave the report of the Board on the Reorganization Plan. He stated that for many years the policy of the A. M. A. has almost always had to be one of opposition to the Administration. Now the door is open and we are asked to give to the government our assistance in its medical problems. After a thorough consideration of the Plan, during conferences with the President, Mrs. Hobby and others, the Board of Trustees asked the House of Delegates to support Reorganization Plan No. 1. After a brief discussion the House voted, by unanimous action, to support the Plan.

LAURENCE L. FITCHETT, M. D.,
Delegate to the A. M. A.

MISCELLANEOUS

Have You Paid Your Dues!

The American Medical Association Annual Session will be held in New York City from June 1 to June 5, 1953. The headquarters, Scientific and Technical Exhibits, and other meetings will be at the Grand Central Palace, 44th and Lexington Avenues.

To avoid the usual congestion at the registration windows and to save yourself trouble and delay, the American Medical Association is issuing advance-registration cards which will make it possible to quickly register instead of waiting in line to have your record checked with the membership roster.

To register it is necessary for you to have a pocket card showing your membership dues in the American Medical Association paid for 1953. If you have not already sent in your check to cover 1953 dues, we suggest that you do so at once, so as to give us an opportunity to forward the payment to the A. M. A. in time to have the A. M. A. issue a pocket card and also an advance-registration card to you.

A Statement by Edward A. Rumely

The Supreme Court of the United States has spoken. Once again it upholds Constitutional government. It is now the supreme law of the land that no partisan group, minority or majority, can interfere with the rights of American citizens to print and distribute, and with the rights of American citizens to buy and read what printed matter they choose. This is a new and sweeping victory for freedom of the press.

The decision is as far reaching as the court decision in Colonial times when a jury upheld the right of Peter Zenger, a printer, to question acts of the Crown and its agents.

The Court of Appeals reversed the conviction in the lower court, saying, "Appellant Rumely was within his rights in his refusal to supply the names of purchasers of books.

"But, speech and press, including the new means of mass communication, radio, television and movies *are freedoms protected by the First Amendment.* And the public policy which prohibits any current Congressional membership from abridging the impact of public opinion upon the Congress is as sound today as it was when it was first formulated. If those who today would influence legislation turn from the buttonholes of the legislators to the forum of public opinion for support, a great good in the cause of representative government has been done."

Had the highest court in the land not upheld my refusal to reveal the names of purchasers of our books, no publisher in the country would have been safe from the possibility of being haled to Washington to reveal his subscription and readership lists.

By its inquisitorial procedure, the Buchanan Committee intimidated prospective purchasers of our books to the extent of several hundreds of thousands of dollars. That sacrifice of legitimate revenue is well worth the loss if it now protects all publishers, private citizens and business firms from any such further inquisition and intimidation.

The Medical Curriculum

Medical educators must restructure the entire medical curriculum to meet the changing health needs of today, according to Dr. George Packer Berry, dean of Harvard Medical School, writing in the March issue of the *Journal of Medical Education.*

Dr. Berry names freedom of opportunity for good health as a basic human right and declares "that this opportunity for good health should be provided for all is an insistent and growing demand."

This movement must come from the medical profession itself and properly starts with the education of future doctors. Dr. Berry goes on to say: "Let us not forget that if we do not do some very hard thinking and acting right now, some one whom we believe to be less competent than we will do the acting for us without thinking. If we believe that we are the best architects, it is up to us to produce the plans."

After outlining some of the plans for active revamping of the medical curriculum now underway, Dr. Berry describes a six-year program of Teaching Institutes to be sponsored by the Association of American Medical Colleges. The purpose of the Teaching Institutes will be to examine the medical curriculum critically to determine what changes need to be made to bring it up-to-date.

Advances in medicine have increased life expectancy by a third since 1900, says Dr. Berry, and in so doing have contributed to the creation of new and difficult problems which medicine must help to solve. Medicine must train men to serve the whole patient rather than merely to cure disease or aid disabilities. This calls for extensive revision of the medical curriculum.

The first such Teaching Institute will be held at Atantic City immediately preceding the 64th annual meeting of the Association of American Medical Colleges October 26-28. The areas covered will be the teaching of physiology, biochemistry and pharmacology. Every medical school in the country will be invited to participate. Future conferences will cover pathology, microbiology, immunology and genetics; anatomy, histology, embryology and anthropology; medical ecology; clinical teaching, including the internship; specialty training and the continuing education of the physician.

Dr. Berry indicates that many medical schools have already undertaken programs to revise their curriculums. He cites Western Reserve University, where a new curriculum was inaugurated this fall and is being watched with interest by medical educators. Other schools mentioned as conducting experiments in their curriculum include Harvard, the University of Tennessee, Boston University, the University of Colorado, and Cornell.

As basic to consideration of curriculum revision, the March issue of MEDICAL EDUCATION also contains a statement, in its eighth revision, of the objectives of undergraduate medical education. The document is the first formal statement of objectives formulated by the Association of American Medical Colleges, and more than 100 educators participated in its development. Broad objectives of medical education are listed as: (1) acquiring requisite knowledge (2) establishing essential habits (3) achieving basic skills (4) developing sound attitudes (5) gaining an understanding of professional and ethical principles.

Most Doctors Don't Want Social Security

Should Social Security be extended to physicians in private practice? Most of these M. D.'s say "No," according to an article in the February issue of Medical Economics, national business magazine for doctors.

The magazine recently asked the question on a survey questionnaire sent to each of its

134,000 physician-readers. Fifty-five per cent of the respondents said they oppose Social Security coverage for private M. D.'s; the remaining 45 per cent said they favor it.

According to the survey, opposition to Social Security coverage is strongest among doctors in small towns, among women doctors, and among doctors in the high-income brackets.

Red Cross First Aid and Water Safety

Because of increased interest in self-preservation and water sports, Red Cross first aid certificates awarded in 1951-52 topped the million mark for the second consecutive year, with 1,090,000; and swimming and lifesaving certificates attained an all-time peak of 813,000. In addition, first aid and water safety demonstrations and talks reached more than 5,700,000 persons.

Average Doctor Has More Patients Now

The average U. S. physician in private practice works a fifty-eight hour week and sees twenty-eight patients in a typical day. His patient load has increased 12 per cent in the past four years.

These figures are revealed in the February issue of *Medical Economics*, national business magazine for doctors. The magazine is publishing the results of a nationwide survey it made recently among its 134,000 M. D.-readers.

Herman E. Gaumer, M.D.

Dr. Herman E. Gaumer, 42, of Bellevue Manor, died April 4, 1953 of a heart attack while playing golf at the Hercules Country Club. Taken to the Memorial Hospital in the ambulance of the Minquas Fire Company, he was pronounced dead on arrival.

With him at the time he was stricken were Dr. Richard E. Chaddock of the Hercules Powder Company, Dr. Olaf P. Bergelin of the Department of Chemical Engineering, University of Delaware, and Dr. Gaumer's 11-year-old son, Richard, who was caddying for the threesome.

Born in Philadelphia in 1910, Dr. Gaumer received his bachelor's degree in 1932 from Pennsylvania State College, where he was a member of the football team and Beta Theta Pi fraternity. In 1936 he received his doctorate in medicine from Hahnemann Medical College, where he was a member of the staffs of Delaware, Memorial, St. Francis and Wilmington General Hospitals and the New Castle County Medical Society, and the Medical Society of Delaware. He was a member of the Presbyterian Church of the Covenant.

An enthusiastic golfer, he was a member of the Concord Country Club and the Kennet Square Country Club.

During World War II he was a captain in the Medical Corps of the Army, and he saw service in the European Theatre of Operations.

Surviving, in addition to his son, are his wife, Mrs. Elizabeth Dilsworth Gaumer; a daughter, Judith, 11; his parents, Mr. and Mrs. Herman Gaumer Sr. of Philadelphia, and three brothers, Albert and Elmer S., both of Philadelphia, and John L. Gaumer of Blowing Rock, North Carolina.

Funeral services were held on April 7 at the Presbyterian Church of the Covenant, Bellevue, the Rev. Dr. Gordon R. Coning, minister of the church, officiating and interment was in Lower Brandywine Cemetery.

BOOK REVIEW

PLASTIC AND RECONSTRUCTIVE SURGERY—A Manual of Management. By Ferris Smith, M.D., Consultant in Plastic Surgery, Blodgett Memorial Hospital, Grand Rapids, Michigan. Pg. 895, with 592 figures. Cloth. Price, $15.00. Philadelphia: W. B. Saunders Company, 1950.

Dr. Smith's book is an excellent adjunct to the teaching material used in the preparation of an individual in plastic surgery. It, by itself, is not presented so as to teach the general or orthopedic surgeon to be versed in the field of major reconstructive procedures. Its use will mainly come to those already versed in plastic and reconstructive surgery, or those already training within that specialty.

The first portion of the book is devoted to the general principles of plastic surgery and is very well presented. This section is recommended to all those in any field of surgery.

The main portion of the book is concerned with reconstructive procedures of the head and neck.

The concluding part discusses reconstructive procedures of the extremities.

The bibliography appended to the end of the book is good, as is the format, etc. This book should be in the library of the hospital as well as in the library of any plastic surgeon.

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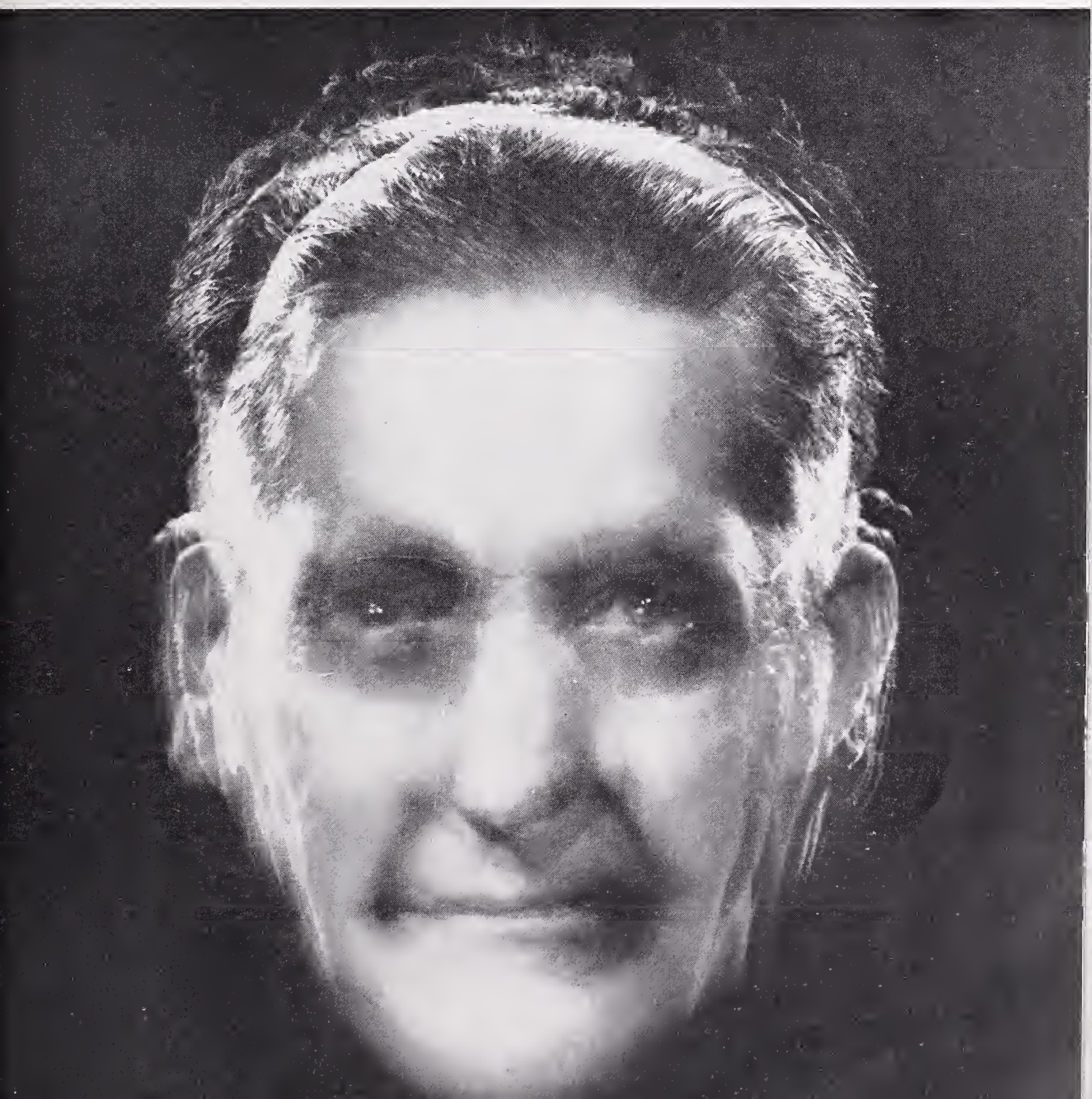

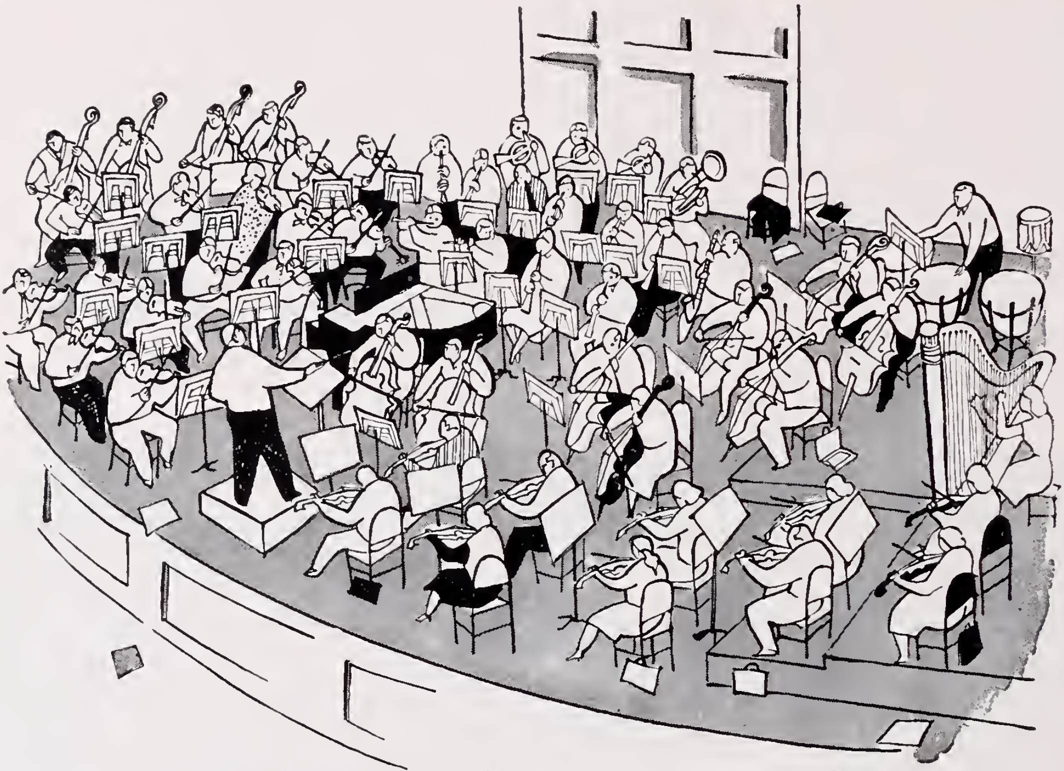

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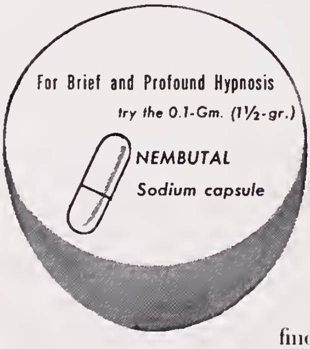

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Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
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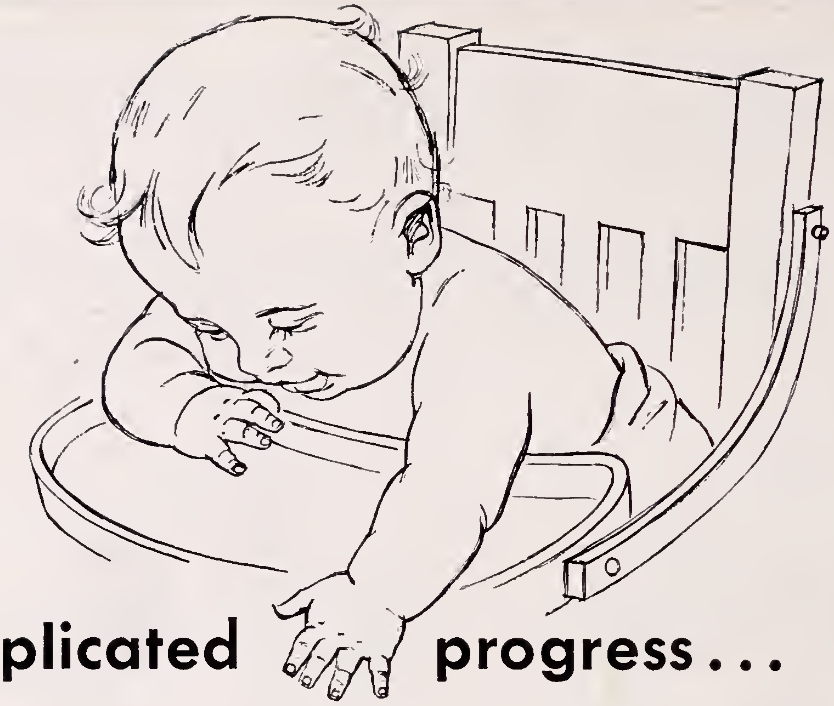
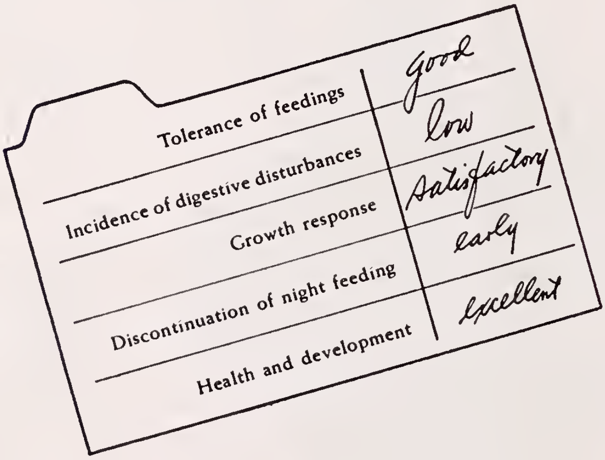


uncomplicated progress...



Tolerance of feedings	good
Incidence of digestive disturbances	low
Growth response	Satisfactory
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Health and development	excellent

The uncomplicated nutritional progress[1] of infants fed Lactum® speaks for its sound rationale. Lactum is Mead's liquid formula made from whole milk and Dextri-Maltose.® It provides generous milk protein for sturdy growth and sound tissue structure, with sufficient calories to spare protein and meet the infant's energy needs.

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1. Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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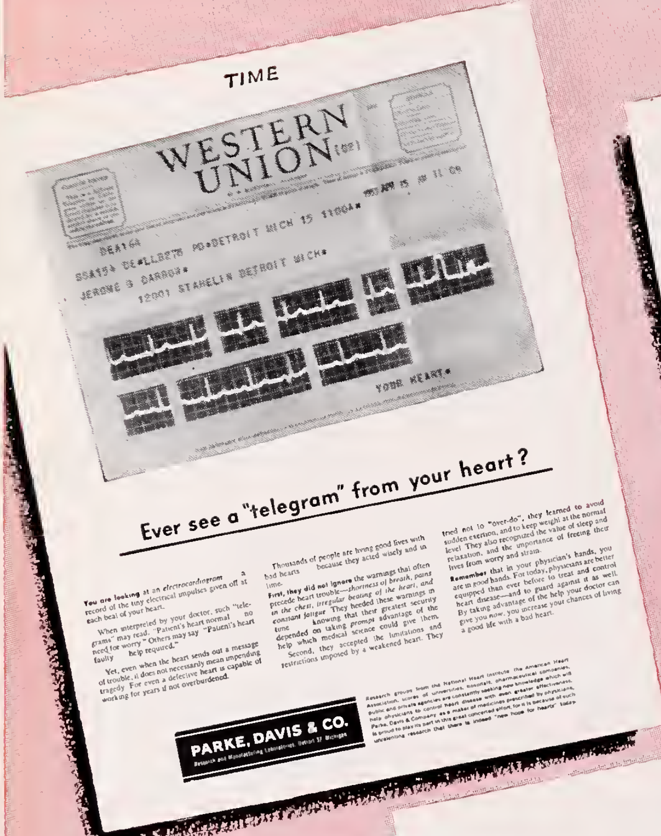
WESTERN UNION
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YOUR HEART=

Ever see a "telegram" from your heart?

You are looking at an *electrocardiogram* a record of the tiny electrical impulses given off at each beat of your heart.

When interpreted by your doctor, such "telegrams" may read, "Patient's heart normal no need for worry." Others may say "Patient's heart faulty help required."

Yet, even when the heart sends out a message of trouble, it does not necessarily mean impending tragedy. For even a defective heart is capable of working for years if not overburdened.

Thousands of people are living good lives with bad hearts because they acted wisely and in time.

First, they did not ignore the warnings that often precede heart trouble—*shortness of breath, pains in the chest, irregular beating of the heart,* and *constant fatigue.* They heeded these warnings in time knowing that their greatest security depended on taking *prompt* advantage of the help which medical science could give them.

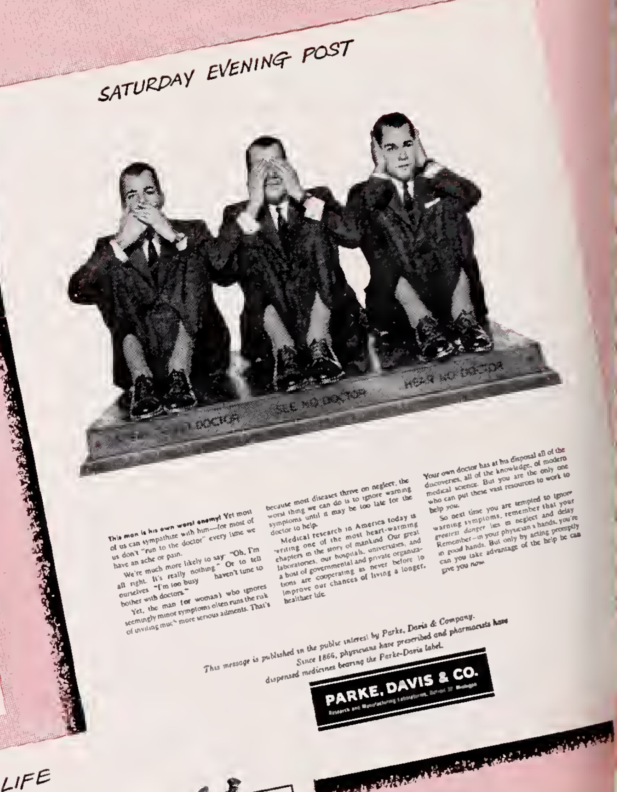
Second, they accepted the limitations and restrictions imposed by a weakened heart. They tried not to "over-do", they learned to avoid sudden exertion, and to keep weight at the normal level. They also recognized the value of sleep and relaxation, and the importance of freeing their lives from worry and strain.

Remember that in your physician's hands, you are in good hands. For today, physicians are better equipped than ever before to treat and control heart disease—and to guard against it as well. By taking advantage of the help your doctor can give you *now*, you increase your chances of living a good life with a bad heart.

PARKE, DAVIS & CO.
Research and Manufacturing Laboratories, Detroit 32 Michigan

Research groups from the National Heart Institute, the American Heart Association, scores of universities, hospitals, pharmaceutical companies, public and private agencies are constantly seeking new knowledge which will help physicians to control heart disease with even greater effectiveness. Parke, Davis & Company as a maker of medicines prescribed by physicians, is proud to play its part in this great concerted effort, for it is because of such unrelenting research that there is indeed "new hope for hearts" today.

SATURDAY EVENING POST


DOCTOR
SEE NO DOCTOR
HEAR NO DOCTOR

This man is his own worst enemy! Yet most of us can sympathize with him—for most of us don't "run to the doctor" every time we have an ache or pain.

We're much more likely to say: "Oh, I'm all right. It's really nothing." Or to tell ourselves "I'm too busy haven't time to bother with doctors."

Yet, the man (or woman) who ignores seemingly minor symptoms often runs the risk of inviting much more serious ailments. That's because most diseases thrive on neglect, the worst thing we can do is to ignore warning symptoms until it may be too late for the doctor to help.

Medical research in America today is writing one of the most heart-warming chapters in the story of mankind. Our great laboratories, our hospitals, universities, and a host of governmental and private organizations are cooperating as never before to improve our chances of living a longer, healthier life.

Your own doctor has at his disposal all of the discoveries, all of the knowledge, of modern medical science. But you are the only one who can put these vast resources to work to help you.

So next time you are tempted to ignore warning symptoms, remember that your greatest danger lies in neglect and delay. Remember—in your physician's hands, you're in good hands. But only by acting promptly can you take advantage of the help he can give you *now*.

This message is published in the public interest by Parke, Davis & Company. Since 1866, physicians have prescribed and pharmacists have dispensed medicines bearing the Parke-Davis label.

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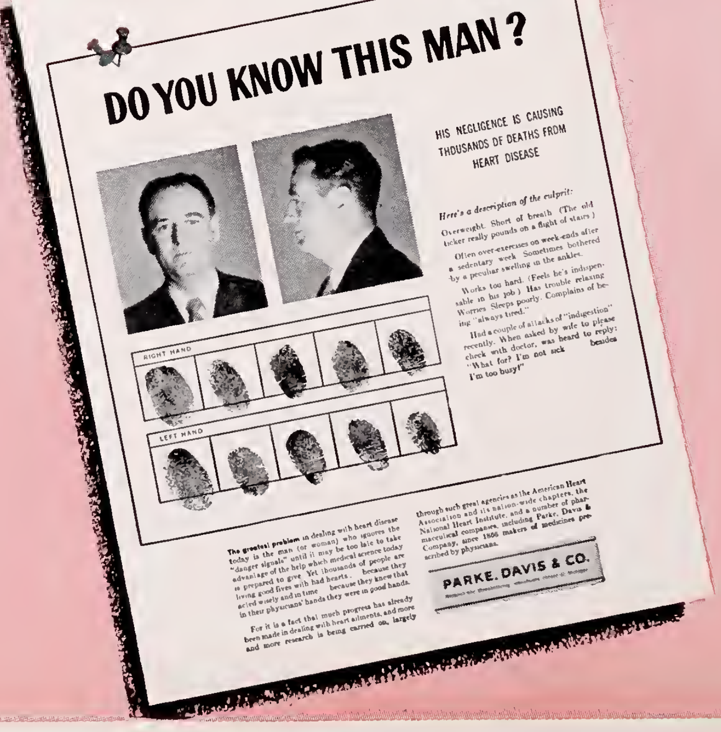
LIFE


RIGHT HAND
LEFT HAND

DO YOU KNOW THIS MAN?

HIS NEGLIGENCE IS CAUSING THOUSANDS OF DEATHS FROM HEART DISEASE

Here's a description of the culprit:

Overweight. Short of breath. (The old ticker really pounds on a flight of stairs.)

Often over-exercises on week-ends after a sedentary week. Sometimes bothered by a peculiar swelling in the ankles.

Works too hard. (Feels he's indispensable in his job.) Has trouble relaxing. Worries. Sleeps poorly. Complains of being "always tired."

Had a couple of attacks of "indigestion" recently. When asked by wife to please check with doctor, was heard to reply: "What for? I'm not sick besides I'm too busy!"

The greatest problem in dealing with heart disease today is the man (or woman) who ignores the "danger signals" until it may be too late to take advantage of the help which medical science today is prepared to give. Yet thousands of people are living good lives with bad hearts because they acted wisely and in time because they knew that in their physicians' hands they were in good hands.

For it is a fact that much progress has already been made in dealing with heart ailments, and more and more research is being carried on, largely through such great agencies as the American Heart Association and its nation-wide chapters, the National Heart Institute, and a number of pharmaceutical companies, including Parke, Davis & Company, since 1866 makers of medicines prescribed by physicians.

PARKE, DAVIS & CO.

ertisements addressed to the general public . . .

ysician, you're in *good* hands"

ct . . . delay. How many times, doctor, have you for patients . . . whose hope of recovery might been bright indeed . . . *but for neglect or delay in* *g your help?*

doubtedly, this occurs so often . . . and usually with tragic consequences . . . that many physicians view he greatest problem facing medical science today.

oreover, this problem may assume even greater icance with the rising incidence of the degenera- iseases. For in these conditions, neglect and delay, u well know, are *directly* responsible for a heavy f life.

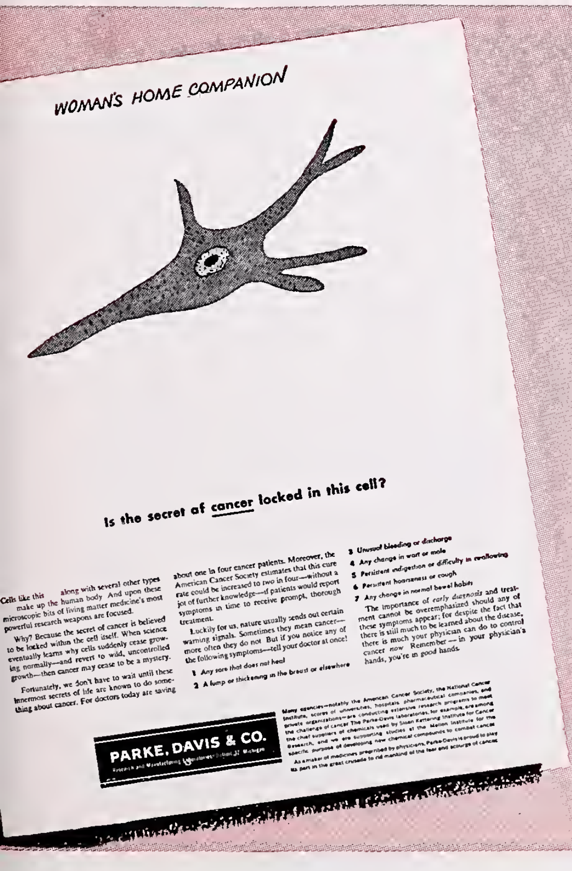
believe you will agree that this problem deserves ised and continuing emphasis. This is why Parke- will publish, throughout 1953, a series of adver- ents on the *patient's responsibility* in medical care.

ese advertisements, four of which are reproduced will appear in leading magazines reaching mil- of families. In them, this central theme will be asized:

That every individual, if he wants his physician's most effective help, must meet the doctor halfway. *He must not ignore symptoms, or delay treatment. He must act promptly . . . and be made to realize that "in the hands of your physician, you're in* good *hands."*

In addition, the advertisements will stress the fact that medicine has a vast store of new knowledge . . . and that this knowledge is constantly increasing through research by physicians, hospitals, public and private health organizations, and pharmaceutical companies.

A word about the preparation of these advertisements: They have been carefully written to avoid both the possibility of stimulating hypochondria and encouraging self-diagnosis. Equally important, the advertisements make no claims that might cause undue optimism or raise false hopes. We believe these are just the type of informative messages you will want your patients to read. Our efforts will be guided and encouraged by your continued interest and comments.



WOMAN'S HOME COMPANION

Is the secret of cancer locked in this cell?

Cells like this along with several other types make up the human body. And upon these microscopic bits of living matter medicine's most powerful research weapons are focused.

Why? Because the secret of cancer is believed to be locked within the cell itself. When science eventually learns why cells suddenly cease growing normally—and revert to wild, uncontrolled growth—then cancer may cease to be a mystery.

Fortunately, we don't have to wait until these innermost secrets of life are known to do something about cancer. For doctors today are saving about one in four cancer patients. Moreover, the American Cancer Society estimates that this cure rate could be increased to two in four—without a jot of further knowledge—if patients would report symptoms in time to receive prompt, thorough treatment.

Luckily for us, nature usually sends out certain warning signals. Sometimes they mean cancer—more often they do not. But if you notice any of the following symptoms—tell your doctor at once!

1 *Any sore that does not heal*

2 *A lump or thickening in the breast or elsewhere*

3 *Unusual bleeding or discharge*

4 *Any change in wart or mole*

5 *Persistent indigestion or difficulty in swallowing*

6 *Persistent hoarseness or cough*

7 *Any change in normal bowel habits*

The importance of *early diagnosis* and treatment cannot be overemphasized should any of these symptoms appear; for despite the fact that there is still much to be learned about the disease, there is much your physician can do to control cancer *now*. Remember — in your physician's hands, you're in good hands.

Many agencies—notably the American Cancer Society, the National Cancer Institute, scores of universities, hospitals, pharmaceutical companies, and private organizations—are conducting extensive research programs to meet the challenge of cancer. The Parke-Davis laboratories, for example, are among the chief suppliers of chemicals used by Sloan Kettering Institute for Cancer Research, and we are supporting studies at the Mellon Institute for the specific purpose of developing new chemical compounds to combat cancer.

As a maker of medicines prescribed by physicians, Parke-Davis is proud to play its part in the great crusade to rid mankind of the fear and scourge of cancer.

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Research and Manufacturing Laboratories, Detroit 32, Michigan

PARKE, DAVIS & CO.

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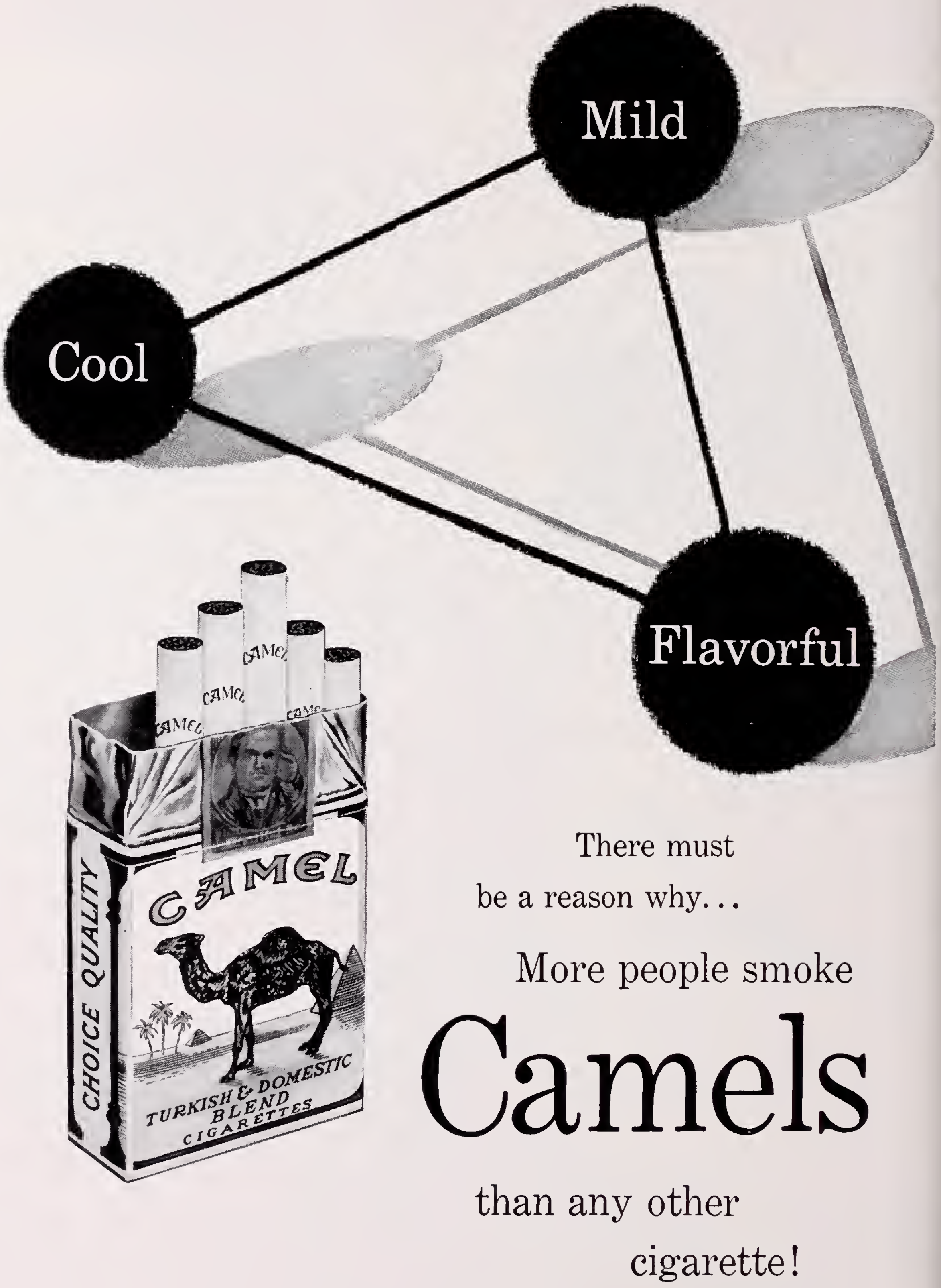
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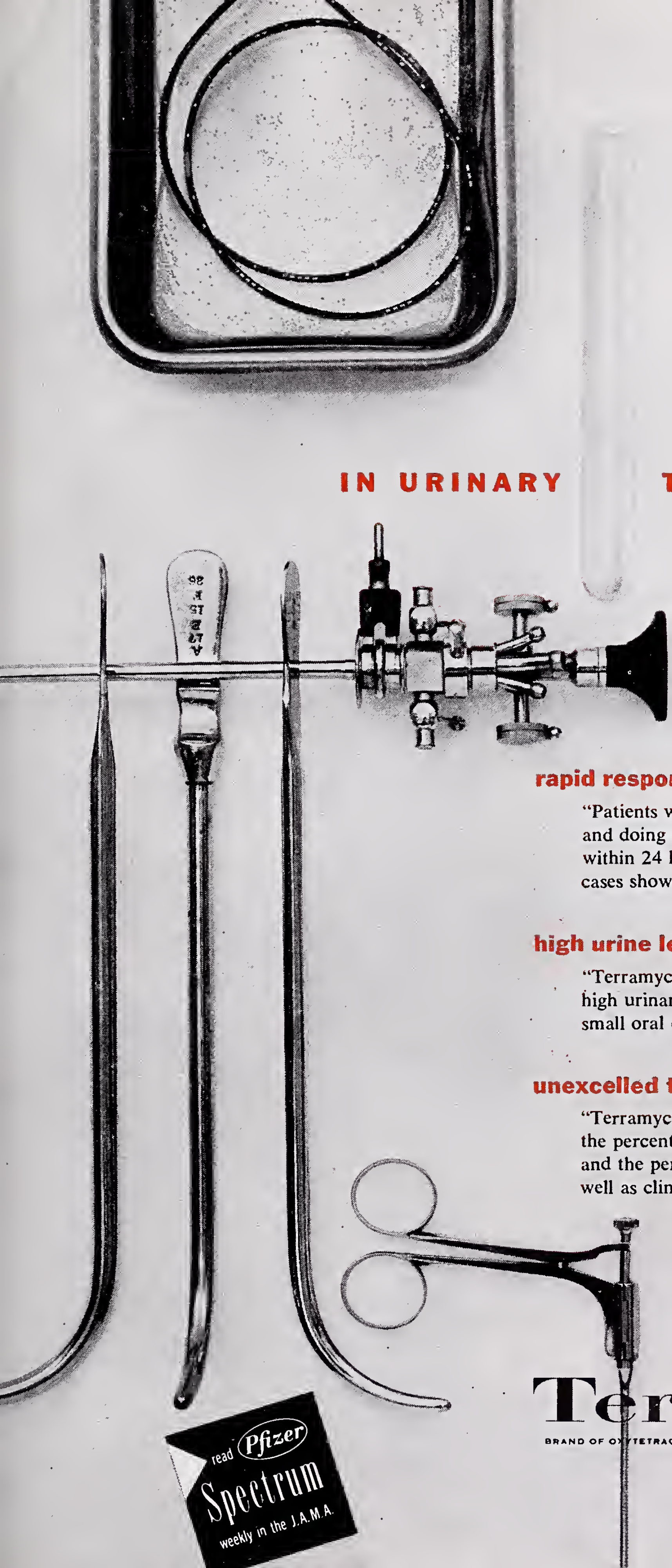
Flavorful
CAMEL
CHOICE QUALITY
TURKISH & DOMESTIC BLEND CIGARETTES
There must be a reason why...
More people smoke
Camels
than any other cigarette!



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"Terramycin was selected . . . in view of high urinary excretion rate following small oral doses of the antibiotic."[1]

unexcelled toleration

"Terramycin is generally well tolerated, the percentage of relapses being low and the percentage of bacteriological as well as clinical cures high."[3]

1. Canad. M. A. J. 66:151 (Feb.) 1952.
2. J. Urol. 67:762 (May) 1952.
3. Ibid. 69:315 (Feb.) 1953.

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Pfizer

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Adequate protein nutrition has been found essential to:

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(with carbohydrate 25%), Vanillin Flavored,
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Essenamine Compound Granules
(with carbohydrate 30%), Vanillin Flavored,
7½ oz. and 1 lb. glass jars.

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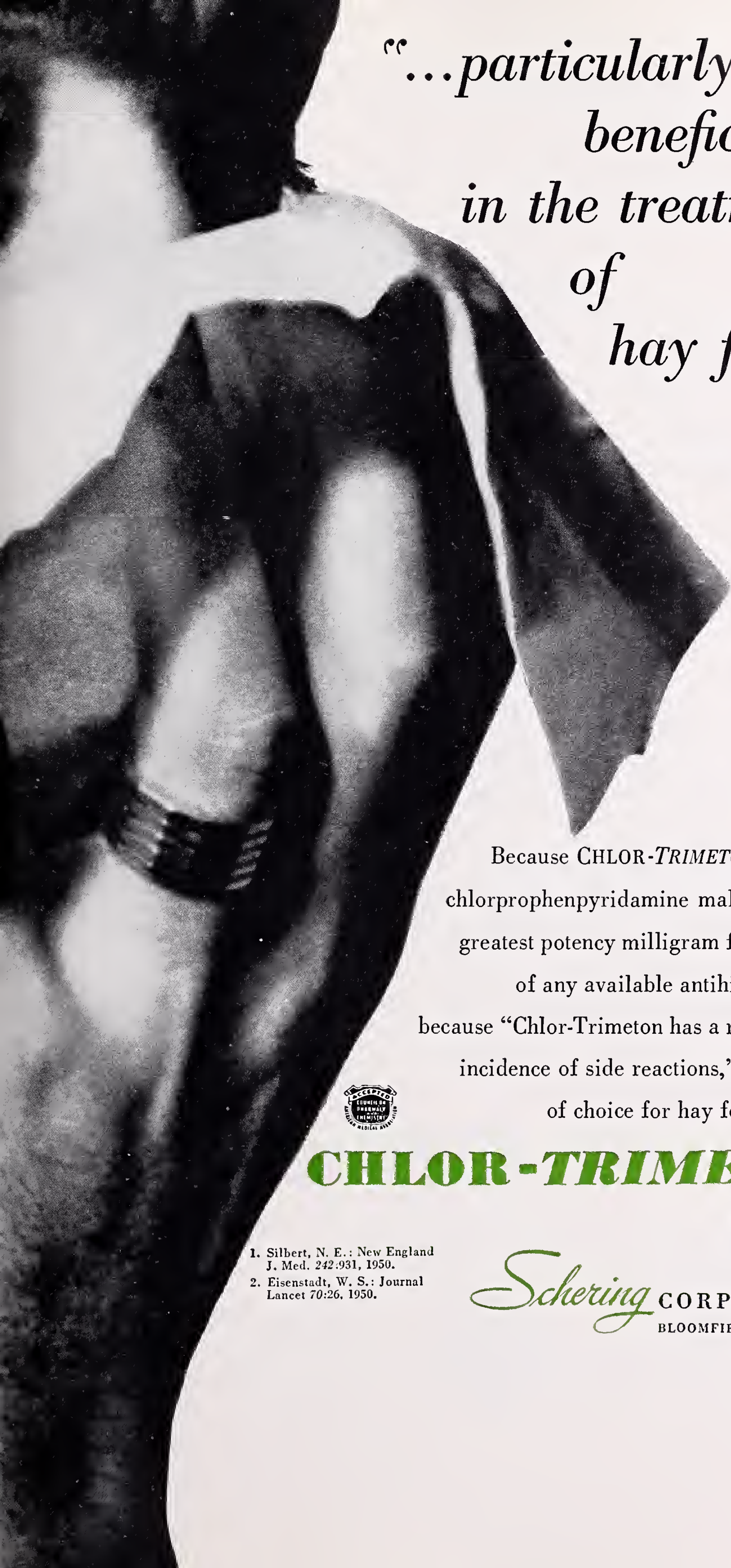

"...particularly beneficial in the treatment of hay fever."[1]

Because CHLOR-*TRIMETON*® maleate, chlorprophenpyridamine maleate, has the greatest potency milligram for milligram of any available antihistamine, and because "Chlor-Trimeton has a relatively low incidence of side reactions,"[2] it is a drug of choice for hay fever patients.

CHLOR-*TRIMETON*
maleate

1. Silbert, N. E.: New England J. Med. *242*:931, 1950.
2. Eisenstadt, W. S.: Journal Lancet *70*:26, 1950.

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Patients suffering from Spring allergies can be relieved promptly of annoying symptoms—with NEO-ANTERGAN.

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Research and Production
for the Nation's Health

MERCK

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY

Meat...

and the Low Sodium Diet

The beneficial effect of sodium restriction in the management of hypertension and many types of cardiac disease is firmly established. A low sodium diet aids in preventing edema and frequently leads to a significant reduction in arterial tension.

To emphasize the importance of sodium restriction and to enable the physician to present his patient with an informative discussion of the subject, The American Heart Association has just published a valuable pamphlet entitled "Food For Your Heart."* Covered also in this booklet is the importance of weight reduction in the management of the cardiac patient.

Dietary recommendations for three levels of sodium restriction are given. In all of them, meat is an important constituent of the diet. In the diet providing moderate sodium restriction (0.5 to 1.5 Gm. of sodium), 4 to 6 ounces of unsalted meat, fish or fowl are allowed. In severe restriction (0.5 Gm. sodium), 3 to 4 ounces of meat are permitted daily. The weight reduction-moderate sodium restriction diet calls for 5 to 6 ounces of meat daily.

This booklet again emphasizes the valuable application of meat in the dietary management of cardiac disease, hypertension, and obesity. Since, as the manual emphasizes, infectious diseases and such scourges as typhoid fever have now been controlled with antibiotics, chemotherapeutic agents and modern sanitation, "many physicians and scientists consider nutrition the most important environmental factor in health."

Meat, with its wealth of high quality protein, B complex vitamins and important minerals, plays an important role in the aim toward better national health. That the generous consumption of meat by the American people is a significant factor in attaining this goal is reflected in the statement that "most physicians feel that the high American consumption of protein is a good thing."

---

*Food for Your Heart, a Manual for Patient and Physician, Department of Nutrition, Harvard School of Public Health, Harvard University, The American Heart Association, Inc., New York, 1952. Copies available through local Heart Association.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

For every age group...

this *Broad Spectrum*

DIETARY SUPPLEMENT

Regardless of cause or patient age, the need for dietary supplementation frequently arises. Whenever such supplementation is indicated to round out the intake of essential nutrients, a truly broad spectrum supplement—one that supplies notable amounts of all important nutrients—will serve the patient optimally.

Ovaltine in milk, a delicious food drink, has long been widely prescribed for this purpose. As the appended table shows, it supplies substantial amounts of virtually all nutrients known to take part in metabolism, from biologically top-grade proteins, through the gamut of the essential vitamins, to the minerals needed in trace amounts.

Whenever the patient's nutritional state must be improved, Ovaltine deserves the physician's first consideration.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ovaltine

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(Each serving made of ½ oz. of Ovaltine and 8 fl. oz. of whole milk)

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CHLORINE	900 mg.	BIOTIN	0.03 mg.
COBALT	0.006 mg.	CHOLINE	200 mg.
*COPPER	0.7 mg.	FOLIC ACID	0.05 mg.
FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.15 mg.	PANTOTHENIC ACID	3.0 mg.
*IRON	12 mg.	PYRIDOXINE	0.6 mg.
MAGNESIUM	120 mg.	*RIBOFLAVIN	2.0 mg.
MANGANESE	0.4 mg.	*THIAMINE	1.2 mg.
*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
POTASSIUM	1300 mg.	VITAMIN B_{12}	0.005 mg.
SODIUM	560 mg.	*VITAMIN D	420 I.U.
ZINC	2.6 mg.		

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*LIPIDS	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council

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Available in a large variety of sizes and forms, including:
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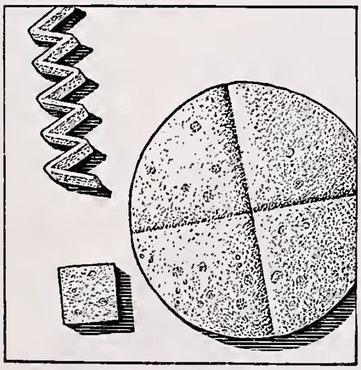

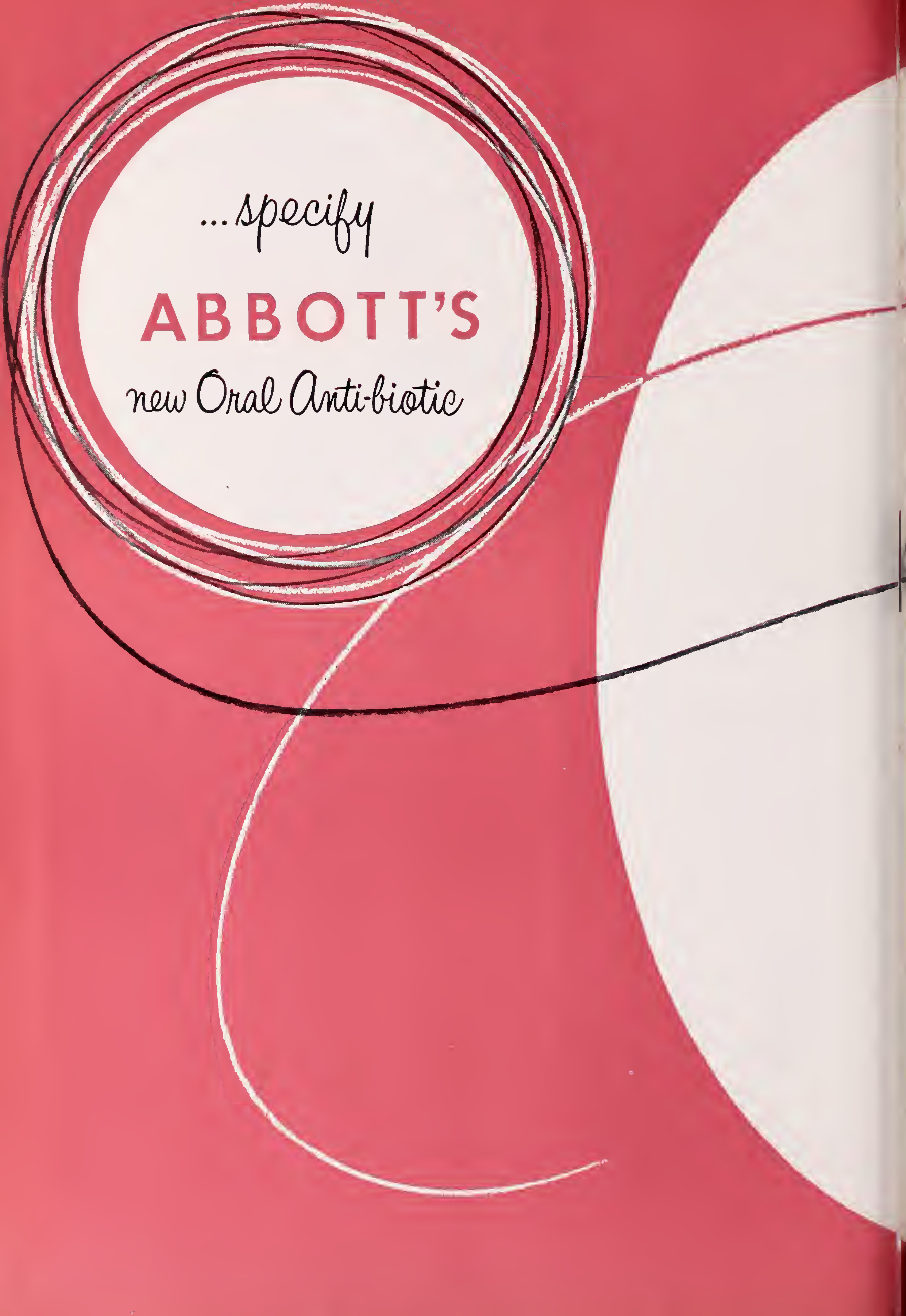
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ABBOTT'S
new Oral Anti-biotic

Especially effective against gram-positive organisms resistant to other antibiotics.

Low toxicity; reported side effects infrequent.

Special "high-blood-level" coating.
ERYTHROCIN, *0.1-Gm. (100-mg.) Tablets, bottle of 25.*

ERYTHROCIN

TRADE MARK

(Erythromycin, Abbott)

ICATIONS Pharyngitis, tonsillitis, scarlet fever, erysipelas, pneumococcic pneumonia, osteomyelitis, pyoderma. *Also other infections caused by organisms* susceptible to its action, including staphylococci, streptococci and pneumococci.

DOSAGE Total daily dose of 0.8 to 2 Gm., depending on severity of the infection. A total daily dose of 0.6 Gm. is often adequate in the treatment of pneumococcic pneumonia. *For the average adult* the initial dose is 0.2 Gm. to be followed by doses of 0.1 or 0.2 Gm. followed by doses in the same range every four to six hours. *For severely ill patients* doses up to 0.5 Gm. may be repeated at six-hour intervals if necessary. Satisfactory clinical response should appear in 24 to 48 hours if the causative organism is susceptible to ERYTHROCIN. Continue for 48 hours after temperature returns to normal.

Abbott

1. McGuire et al. (1952), J. Antibiotics & Chemo., 2:281, June.
2. Heilman et al. (1952), Proc. Staff Meet. Mayo Clin., 27:385, July 16.
3. Haight and Finland (1952), New Eng. J. Med., 247:227, Aug. 14.

You, too, have a place

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anywhere in the world
civilian...in the armed forces...retired

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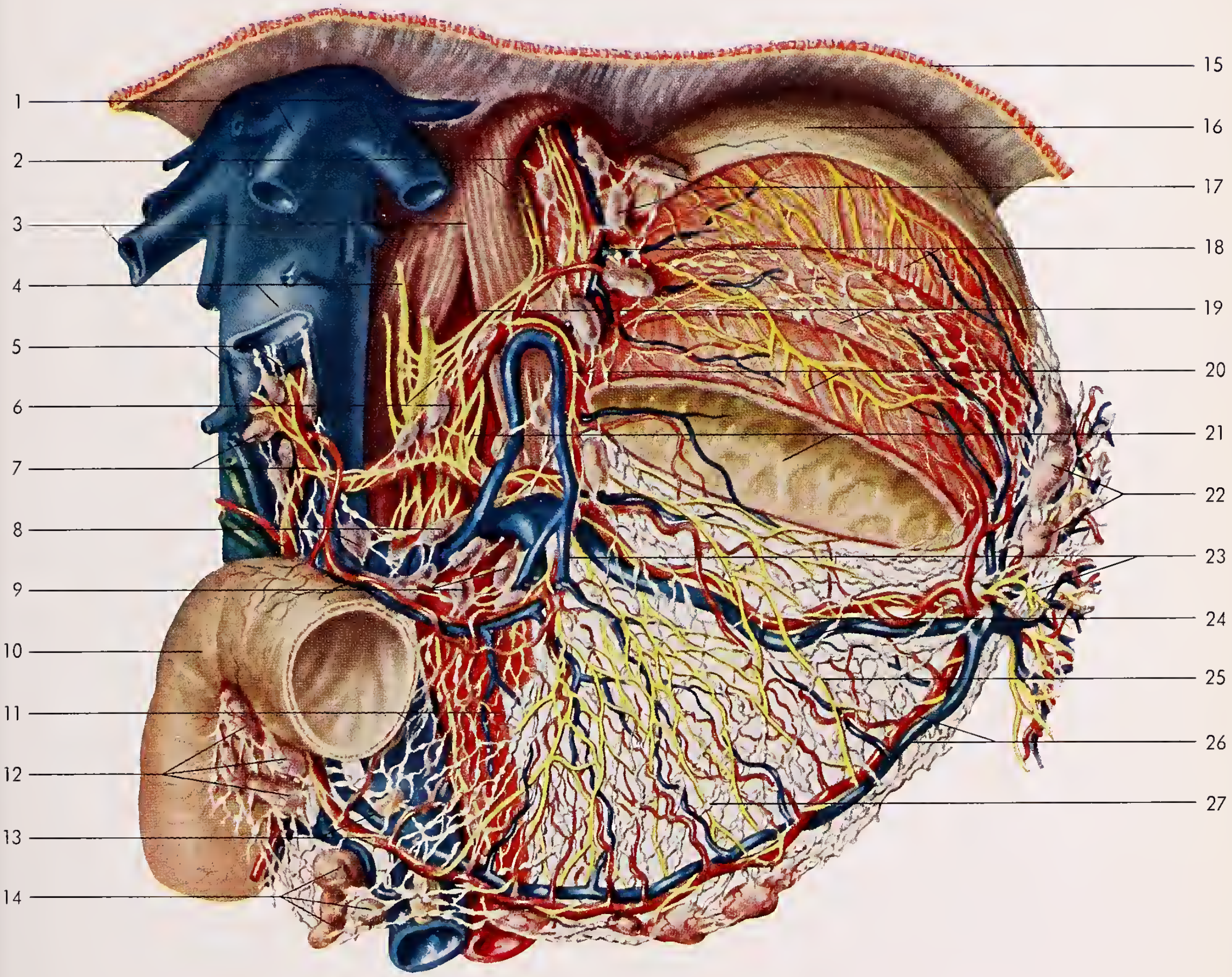

1 Middle and left hepatic veins
2 Right vagus nerve and esophagus
3 Right hepatic vein and crura of diaphragm
4 Inferior vena cava and greater splanchnic nerve
5 Portal vein and hepatic artery
6 Celiac plexus and celiac artery
7 Hepatic lymph node and hepatic rami of vagus nerve
8 Gastroduodenal artery and suprapyloric lymph nodes
9 Superior gastric lymph nodes
10 Duodenum
11 Superior mesenteric artery and vein
12 Subpyloric lymph nodes
13 Right gastroepiploic artery and vein
14 Inferior gastric lymph nodes
15 Diaphragm
16 Serosa
17 Paracardial lymph nodes
18 Left vagus nerve and longitudinal muscular layer
19 Abdominal aorta and circular muscular layer
20 Left gastric artery and oblique muscular layer
21 Celiac rami of vagus nerve and gastric mucosa
22 Splenic lymph nodes
23 Left gastric (coronary) vein and splenic rami of vagus nerve
24 Splenic artery and vein
25 Gastric rami of vagus nerve
26 Left gastroepiploic artery and vein
27 Gastric lymphatic plexus

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THE ELECTROCARDIOGRAPH ELECTROLYTES, AND TOXEMIA OF PREGNANCY

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Myocardial damage occurring in pregnancy has interested observers for many years. In 1937, Gouley, McMillan, and Bellett[1] reported an idiopathic myocardial degeneration associated with pregnancy (and especially the puerperium) with autopsy findings revealing edema of the endocardium, round and epithelial cell infiltration, and foci of endocardial thrombosis. Pulmonary infarction was sometimes seen. The electrocardiograms showed inverted T waves, but were not diagnostic of a specific entity. In 1948, Wallace et al[2] reported two cases of toxemia with electrocardiographic changes suggesting atypical anterior infarction or strain. One case showed restitution in two weeks. He believed the electrocardiographic changes could be divided into those normally occurring in pregnancy due to change in heart position and hydremia, those due to toxemia per se, or those due to toxemia plus cardiac failure. Mendelson[3] reported two cases of isolated myocarditis in pregnancy; autopsy revealed both hearts to be enlarged, and he concluded that the etiology was obscure. In most cases of eclampsia, the heart was found to be more or less involved at autopsy and was perfectly normal in only eight out of one hundred and two autopsies analyzed by Polak.[4] According to Schmorl,[4] the changes usually consisted in degenerative processes in the myocardium. Disregarding cloudy swelling and fatty degeneration, which were frequently present, he found hemorrhage and necrosis in the myocardium in forty-three of seventy-three autopsies. In the neighborhood of the hemorrhages, the muscle fibres were disintegrated into hyaline layers usually with the nucleus gone and the transverse striations no longer recognizable.

In Way's[4] more recent studies of thirty-three cases, the heart was the site of hemorrhage in twelve patients; four of these showed focal necrosis of the myocardium with slight cellular reaction. There were two cases of myocarditis, one characterized by focal aggregation of polymorphonuclear leucocytes and the other a diffuse scattering of round cells.

Clinically, the frequency of pulmonary edema and cyanosis in severe eclampsia suggests heart failure; moreover, autopsy findings indicating cardiac damage is not uncommon. Stroganoff[4] was impressed with the important role played by heart failure in eclampsia and included digitalis in his regime of therapy. White stated that "there may be serious toxic myocardial dilitation with acute heart failure and pulmonary edema" in the acute hypertension associated with toxemia.

In 1946, Wallace et al[2] examined the electrocardiographic records of twelve patients suffering from toxemia and found significant changes in six with actual left ventricular failure in two of these. They felt that the alterations simulated those occasionally seen in acute nephritis and attributed them to local myocardial necrosis, infiltration and edema, rather than to myocardial infarction secondary to occlusion of the coronary artery.

Szelely and Snaith[4] made detailed observations of the heart in nineteen unselected cases of toxemia of pregnancy and found that seven cases showed significant clinical and/or electrocardiographic changes. Left ventricular failure was observed in three, and one of these also showed T wave changes similar to those seen in anterior myocardial infarction. Significant electrocardiographic changes were seen in five, these changes consisting of transient alterations of the T waves usually in both standard and chest leads.

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On the other side of the question, Hamilton,[4] on the basis of a large experience with heart disease in pregnancy, has taken a very strong stand, stating "our present opinion is that uncomplicated pre-eclampsia or eclampsia causes neither heart failure nor significant acute myocarditis." Over the years, he has carried out a searching study of this problem and is still looking for a case where undoubted myocarditis of clinical importance appears during uncomplicated eclampsia or pre-eclampsia. In regard to edema of the lungs, he believes that this is due to causes other than cardiac weakness.

There is, therefore, a decided difference of opinion amongst cardiologists in regard to the role which cardiac alterations play in the pathologic physiology of this disease. This is most regrettable, since the question has to do with such important problems as the justification of digitalization in pre-eclampsia and eclampsia. Despite Hamilton's opinion, many obstetricians cannot help but be impressed by the abundant evidence documenting the contrary point of view, and for some years they have digitalized all eclamptic patients.

CASE REPORT

Mrs. C. D., twenty-two, referred to the St. Francis Hospital by Dr. A. R. Cruchley, a primipara in the sixth month, was admitted 2/18/52 having had one convulsion, plus edema of the ankles and hands with nausea and vomiting of one month's duration. Fatal heart sounds were heard at the rate of 140 per minute, and a labile hypertension was present, with readings over a nine day period varying from 122/80 to 170/112. The laboratory reported blood urea 23 mg.%, uric acid 5.5 mg.%, and total protein 5.6 gm. with albumin 4 and globulin 1.6. Repeated urinalyses showed 4 plus albuminuria with specific gravities running between 1.012 and 1.027. The patient seemed confused and responded poorly to questioning. Her muscle tonus suggested a pre-eclamptic state. This diagnosis was entertained and treatment with magnesium sulphate intramuscularly, low sodium diet, and intravenous fluids resulted in slight improvement. The patient was afebrile throughout this admission and was discharged 2/27/52. No electrocardiogram was taken.

On readmission 3/6/52, edema had increased, involving the ankles, legs, vulva, and buttocks. No dyspnea, cyanosis, or fever were present, although moist basal rales were detected. Heart size was normal by X-ray, but the costophrenic angles were partially obscured with possible effusion at the left base (see Fig. 1). No fetal heart sounds or movement could be detected, and blood pressure, particularly diastolic, was now persistently elevated.

Fig. 2 reveals serial electrocardiograms which could be interpreted as atypical anterior infarction or strain pattern. Daily urinalyses continued to show 4 plus albuminuria and some granular casts, but appropriate laboratory studies failed to reveal nitrogeneous retention, anemia, acidosis, or blood protein derangement as a factor in the STT changes. Opthalmological consultation (Dr. W. O. LaMotte, Jr.) showed no retinal changes.

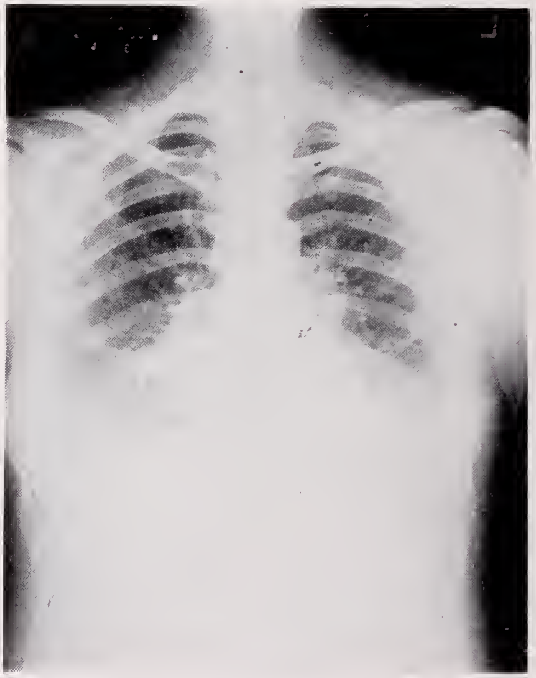

Fig. 1. Six foot plate showing normal heart size with possible effusion at left base.

On March 7th, the patient's condition had deteriorated considerably and it was felt that electrolyte studies should be determined. Since it is well known that the syndrome of eclampsia may be at times superimposed upon intrinsic renal disease, studies of serum electrolytes were done. These revealed a low sodium of 129 mEq/L and a high potassium, 6.25 mEq/L, with a CO2 of 17 mEq/L and a chloride of 65 mEq/L. These determinations suggested a decrease in the osmotic pressure of the extracellular fluid, and the problem of restoring this arose. Since it is known that abnormalities of the extracellular fluid may cause a further decrease in renal function in patients with advanced renal dysfunction, it was, therefore, decided to give this patient an isotonic infusion of sodium chloride lactate (750 cc. normal saline plus 250 cc. of 1/6 molar lactate). A more hypertonic solution was not chosen because of the fact that the content of 155 mEq/L of the isotonic solution was hypertonic at that time for the patient's serum. It was felt that this solution would tend to lower the serum potassium and mildly restore the structure of the extracellular fluid.

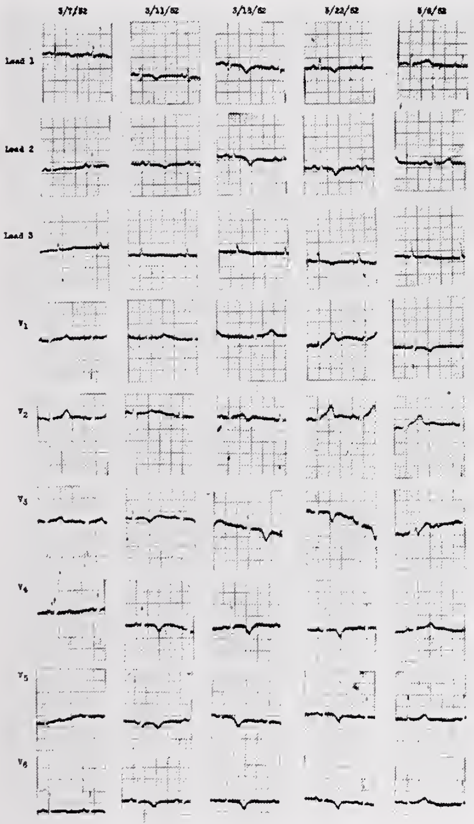

Fig. 2. Serial electrocardiograms. See text.

Immediately following the electrolyte infusion, the patient was symptomatically improved and able to eat her dinner. Several hours later, the patient was given 500 cc. of blood. Within 30 minutes of the end of the transfusion, the patient experienced acute respiratory distress and went into acute pulmonary edema. Following the blood that was administered, the patient became relatively oliguric, and passed only 1,200 cc. of urine in the next 32 hours. It is of note that several hours after the transfusion the patient spontaneously voided 50 cc. of blood tinged urine. Urinalysis the following day revealed a decrease in the albumin and an alkaline pH. It is felt that this represented a type of transfusion reaction and that the alkaline medium prevented further renal damage. In view of some confusion as to the cause of the acute congestive failure, further electrolyte therapy was not felt advisable.

Supportive therapy with digitalis, oxygen, and intramuscular magnesium sulphate was continued. No mercurial diuretics were used, and adequate urinary output returned. Fetal heart sounds were not elicited, and vaginal or rectal examination was impossible due to the marked edema of the parts. Because of the latter, the patient was taken to the delivery room, and under sterile precautions, the vulva and perineum were sacrificed with a knife, and glycerine and magnesium sulphate compresses applied to relieve the localized edema. These measures of dehydration proved so effective that within forty-eight hours, one of us (W.F.P.) delivered a macerated male fetus (thirty-two weeks gestation) spontaneously without laceration, under gas-oxygen-ether anesthesia. The placenta delivered complete.

Her postpartum course showed gradual return to normotension, disappearance of edema, and clearing of proteinuria. As will be observed in Fig. 2, however, her postpartum electrocardiograms of 3/18/52 and 3/22/52 continued abnormal, actually revealing greater T wave negativity than observed before. The patient was discharged clinically well on 3/22/52. Cardiovascular examination on 5/6/52 (see last electrocardiogram in Fig. 2) was entirely normal.

Review of the Literature

The reason for correction of this unusual state of dehydration plus edema in the same disease was based on the work of Turner, De-

Lozier and Whitacre,[5] who used isotonic normal saline to correct low sodium levels in eclampsia. If dehydration only is present, these writers do not routinely use normal saline, but 5% dextrose in distilled water at the rate of 60 drops per minute; neither do they give more than 1,000 cc. of the isotonic glucose solution in any six hour period although 4,000 cc. per 24 hours has been given.

It must, therefore, be recognized that eclampsia and pre-eclampsia are fertile fields for electrolyte imbalance which may demand careful evaluation and therapy.

Electrolyte therapy has already taken its place in medicine and surgery, and there is some reason to believe that the obstetrical patient is prone to these metabolic changes, although there are other schools of thought, as referred to in later paragraphs.

Neubauer,[6] one of the pioneers in electrolyte therapy, says "salt restriction may be harmful at times, the tubules of the kidney losing salt in large amounts. This syndrome may occur in the presence of edema, and hypertonic sodium chloride of 3 to 5% may be necessary to enable the kidney to resume its normal function. The simplest urine for excretion is an iso-osmotic urine where little renal energy is required." He reports a case refractory to mercurial diuretics, responding to hypertonic sodium chloride plus mercurial diuretics with loss of nearly all of the edema.

In 1948, Fox[7] published a detailed description of serum and urine electrolyte changes in nephrosis, treated with the combined salts of sodium and potassium acetate. He was able to show that in the edematous phase of the disease there was a lowered serum sodium and that the urine was hypotonic for sodium.

Evidently our thinking must be revised in reference to edema. We must think in two dimensions; that is, in the intracellular and extracellular compartments, and furthermore, consider their relation to each other and to the intake and output of fluid and electrolytes.

In reviewing the literature on myocardial changes occurring in pregnancy, including clinical and pathological studies, one is impressed with the obscure nature of this malady. Since most of the reports were written before the days of electrolyte study, we believe this case with its sodium and potassium levels is worth recording. These electrolytes apparently played no part in the electrocardiographic changes, and, while calcium levels were not accomplished, the QT times do not suggest this to be a factor. The outstanding biochemical alteration in pre-eclampsia and eclampsia is water retention over and above that found in a normal pregnancy; indeed, the edema of the eclamptic syndrome may be regarded as an exaggeration of that often seen in normal pregnancy, and whatever causes the one is probably responsible also for the other. The accumulation of tissue fluids seen in eclampsia, in other words, represents simply a physiologic process gone awry. Water retention and sodium retention are so inseparably connected that it is not possible to state whether the edema seen in acute toxemia, as well as in normal pregnancy, represents a primary disorder of water or of sodium metabolism. The evidence that sodium chloride is retained in the toxemias is several fold. Rupp gave five grams of sodium chloride to normal pregnant women and to women suffering from the toxemias of pregnancy, and then investigated the resultant changes in the chlorides of the blood and urine, in order to deduce the fate of the salt. In normal non-pregnant individuals, the ingestion of this amount of sodium chloride was followed by a marked rise in the blood chlorides, together with a simultaneous increase in the urinary output of sodium chloride. In normal pregnant women, on the other hand, blood chlorides augmented only slightly after feeding while the urinary excretion of chlorides was delayed. In cases of toxemia with edema, this effect was still more marked, the ingestion of sodium chloride having no effect on either the blood or urinary chlorides—all of the ingested salt being held by the tissues. Finally, Rupp[4] analyzed the edema fluid of these patients, and showed that in cases of toxemia with edema, the ingestion of salt caused a characteristic increase in the sodium chloride content of this fluid.

The observations of Hardy and VanWyck,[4] made some years ago, are also pertinent to this problem. The authors gave several patients, who were suffering from various grades of toxemia of pregnancy, intravenous injections of 300 cc. of six per cent sodium chloride solution in the belief that this might be a valuable therapeutic measure. The results were well-night disastrous. One patient, who had received two such injections within twenty-four hours developed a fulminating pre-eclampsia with dramatic suddenness, and worse still, went shortly into actual eclampsia and had three typical convulsions. Meanwhile, the blood pressure had risen from 128/100 to 200/140 and the albuminuria had more than doubled in intensity. The patient recovered, but the authors wrote that they had no wish to continue their observations in this direction. They believed firmly that a high intake of salt ingested at the right moment in a developing toxemia will produce albuminuria, increase the blood pressure, and even cause convulsions in a short period of time. Renal function studies indicate a decreased ability to concentrate sodium chloride during pregnancy, an impairment which is intensified in toxemic patients.

Concerning the effect of magnesium, Stanburg and Farah[8] have demonstrated that this ion can decrease the heart rate by direct action on the SA node and may abolish extrasystoles or abnormal rhythms in overdosage of digitalis preparations. In dogs, the cardiac output was decreased, but coronary flow and stroke volume were increased. The effects obtained paralleled serum magnesium levels and calcium ions reversed its effects. No electrocardiographic changes were reported by these authors.

In fulminating pre-eclampsia (as well as in eclampsia) magnesium sulphate intramuscularly or intravenously is regarded as a most valuable agent and this is attested by the eperience of numerous clinics over many years. The efficacy of magnesium sulphate as a central nervous system depressant and as a vasodilator is well known and is substantiated by a large amount of experimental and clinical evidence. In 1925, Blackfan and Hamilton[8] observed that intravenous injections of magnesium sulphate produced a favorable influence by lowering the blood pressure and increasing the flow of urine in children suffering from hemorrhage nephritis. These observations have been confirmed by numerous workers and, more recently, Haury has shown that intravenous injections of magnesium sulphate produced a marked dilitation of the splanchnic organs including the kidneys. Since both sedative and vasodilator effects of magnesium sulphate are urgently to be desired in the treatment of pre-eclampsia and eclampsia, it is not surprising that this drug has been widely employed in the management of these conditions over the past twenty years.

It is important to recall that toxic signs and symptoms do not appear until the serum magnesium reaches 10 to 12 mgs. per 100 cc. At, or near this level, the knee jerks disappear. Between 12 and 15 mgm. per 100 cc., respirations are likely to cease, and when the serum magnesium concentration reaches 15 mgms. per 100 cc., cardiac action may stop and death ensue. Eastman has employed this drug in over four hundred cases with rather large total dosages, and believes that it is possible to administer magnesium sulphate intramuscularly in several times the dosage usually employed without approaching hazardous levels of serum magnesium. On the basis of his experience, which includes more than 300 serum magnesium determinations done at various times after the administration of the drug, he feels, in the first place, that it is entirely safe to administer 10 gms. intramuscularly as an initial dose, followed by 5 gms. every six hours. He has continued this for as long as two or three days with total dosages reaching 60 to 110 gms. and never has observed a serum magnesium level of above 7 mgms. per 100 cc. Usually, the range obtained by such dosage is between 4 and 6 mgms. per 100 cc. In the second place, it is his impression that such levels of magnesium contributed substantially to the lowering of the blood pressure and prevention of convulsions.

In this case report, no clinical signs of magnesium intoxication were encountered, and, although no serum levels were obtained, the electrocardiograms continued to show abnormalities both before and after the use of magnesium. Smith, et al,[9] reporting on electrocardiographic changes following intravenous magnesium in dogs, found AV and intraventricular block patterns produced by high dosages of this ion, but with no T wave changes of any moment. Hence, it appears that this electrolyte had no bearing on the changes in the tracings.

It is our belief that absorption of toxic products from the fetus may in some manner damage the myocardial cells and effect repolarization, which, in this case, proved reversible. It is hoped that further study of similar cases will lead to a better understanding of this abnormality.

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FURTHER OBSERVATIONS ON THE USE OF THE POST-PRANDIAL BLOOD SUGAR IN THE TREATMENT OF DIABETES MELLITUS

Apparent Cure of Three Obese Diabetics

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Advantages of Post-Prandial Sugar Estimation

Since the original publication of Sindoni[1] on post-prandial sugar in diabetes mellitus and its comparison to fasting sugar, the use of the post-prandial sugar has become more prevalent in the diagnosis and treatment of the disease. In 1939 the relationship between blood sugar and urine sugar was clearly described by him and it was concluded that the use of the blood sugar as a guide[2] in the treatment of this disease was far superior to the urinanalysis. At this time he said "in view of the high incidence of disturbed carbohydrate metabolism frequently escaping detection by examination of the urine for sugar and the serious consequences resulting therefrom, blood sugar estimations, fasting and after meals, should be indispensable in early and latent recognition and treatment of diabetes mellitus." When one realizes that about 11% of diagnoses are missed by taking fasting sugars, there seems to be a need for greater attention on our part to the use of this method of diagnosis and treatment. The attention should be directed not only to the physicians of America but also to the doctors of the world. When one gets 'feasting' sugar conscious, amazing revelations come to our minds. One of these is the normal post-prandial sugar. What is its value? This is found in the writings of Sindoni,[1,2] and also in a later paper by Ackerman and Bohan[3] which only served to follow his teaching and verify the work originally done by him. The blood sugar after meals does not exceed the fasting level of 120 mg. in normal persons. Recently a lady with a diabetic family history had a fasting blood sugar of 85 mg. per 100 cc. of blood but a post prandial sugar of 140 mg. This reading is abnormal. A glucose tolerance test done under standard conditions (previous three day diet of at least 300 gm. of carbohydrate) was definitely abnormal. This is an example of similar cases observed at the Philadelphia General Hospital, St. Joseph's Hospital, St. Agnes Hospital in Philadelphia and St. Francis Hospital in Wilmington by Sindoni, Gerber, Bove[4] and the authors.

In the treatment of diabetes mellitus with the use of the post-prandial sugar an attempt is made to keep the sugar level between 170 mg. to 220 mg. per 100 cc. of blood in the insulin treated patient. This is the compatible level described by Sindoni,[1] the level at which the patient is comfortable and in good general health without diabetic symptoms. In a scientific paper to be published soon, he reports 53% of his patients discontinuing insulin with this method of treatment.

The Obese Diabetic

During the treatment of three obese diabetics with diet and insulin and employing the post-prandial sugar as a guide, it was found as the weight was reduced, the insulin was discontinued, and the post-prandial sugar returned to normal levels with apparent cure of the diabetes. This so-called cure has been reported before, but not using the post-prandial sugar as a guide in treatment.

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The relationship of obesity to diabetes is well known and is often interpreted as one of the causes of the disease. Varying estimates place the percentage of diabetes occurring in the obese person between 70 and 80%. The disease is eight times commoner than in those of average weight. Ten thousand children are less likely to have diabetes than ten middle-aged obese persons. Stone[5] reports twenty-five per cent of the population of the United States to be overweight. The frequent association of gall bladder disease and diabetes may partly be due to the obesity as a common denominator although the former is nine times more common when the patient is a diabetic.[6] Favorite words of Elliott Joslin[7] in discussing obesity as an etiological factor in diabetes are "fat man's folly" and "open door to diabetes."

The history of past overweight may be of great importance in classifying the type of diabetic one is dealing with. Loss of weight may have occurred with an already existent and uncontrolled diabetes. In a recent analysis of the weight of persons developing diabetes after forty, it was found that 60% had previously been markedly overweight and an additional 25% had been moderately overweight. Only 15% did not give a history of obesity preceding the diabetes. When detection of hyperglycemia has been made an effort should be made to classify the type of the diabetes. Ucko[8] makes five classifications:

a. Juvenile or brittle type.
b. Hepatic type: hyperglycemia of liver origin.
c. Climacteric: diabetes occurring at this age.
d. Bronze diabetes or hemochromatosis: an iron metabolic disorder.
e. Endocrine type: hyperglycemia seen in hyperthyroidism, hyperpituitarism, and hyperadrenalism.

To this outline may be added two more human types of the disease: the obese type, since it does not fall under the endocrine classification except in certain cases, and those cases due to direct invasion of the pancreas by inflammation or tumor.

Another classification,[9] physiologic in scope, is sometimes made according to the insulin content in the human body, which deficiency, may be absolute or relative:

a. Hereditary deficiency of beta cells of the pancreas.
b. Destruction of the beta cells by (1) pharmacologic agents, e.g. alloxan. (2) disease as chronic pancreatitis or tumor of the organ.
c. Exhaustion of beta cell activity because of an excessive demand for insulin, e.g. obese type of diabetes.
d. Deficiency of insulin percursors as glutathione (a suggestion was made of amino acid deficiency as a possible cause of insulin deficiency in a paper published by one of the authors[10] in 1947.).
e. Extra-pancreatic causes may be due to antagonism to insulin from its mates in the glandular system, e.g. anterior pituitary, adrenal cortex or thyroid gland, or to peripheral inactivation of insulin with failure of end organ response.

Evidence of correlation between maternal obesity of a progressive type, the birth of unusually large babies and ensuing maternal diabetes has been demonstrated by Gilbert.[11] He suggests that excessive secretion of the growth factor during pregnancy may account for these associated phenomena. Growth hormone has been shown to be the most important anterior pituitary factor outside ACTH. Its natural action is to inhibit the peripheral utilization of sugar, thereby antagonizing the action of insulin.

An interesting study was made in Scotland on 413,110 Scottish recruits during the last World War. Munro, Eaton and Glen[12] found no relationship between the presence of a positive family history and the severity of the disease. The frequency of diabetes with a positive family history in obese and hypertensive patients did not differ from that of the group of diabetics as a whole. The hereditary factor does not seem to be concerned with obesity but more with the diabetic status of the ancestry. If neither parent has been identified as a carrier or a potential diabetic, the chance of the child developing diabetes is theoretically zero.

Since the greatest single cause of obesity is overeating, it is readily seen why the incidence of diabetes is reduced in rationing periods as in France during World War I. On the other hand, because the children of most families tend to follow the eating habits of their parents, eating more by rhyme than reason, the tendency of obesity is to be familial. Obesity may also be induced by the endocrine pattern set into many families. Hypothalamic dysfunction may greatly dispose to obesity. Overactivity of the anterior lobe of the pituitary or of the adrenal cortex are known to be associated with obesity. All of these observations suggest that a reason for the obesity should be searched for when diabetes and obesity are found to be associated. For example, it is easy to miss an adrenal tumor which can be diagnosed more easily today than a few years ago.

The obese diabetic usually follows a mild even course as compared to the juvenile or brittle type of diabetes. It is Short's[13] opinion that the diabetic state in obesity is due to pancreatic exhaustion. John[14] believes that this destruction of the islets of Langerhans is reversible in the early stages. Long[15] says that the obesity brought on by overeating deposits fatty acids in the depot areas of the body. These fatty acids require insulin over and above that needed to maintain weight. He believes that the abnormal strain on the pancreas in the obese diabetic virtually amounts to a partial pancreatectomy. Lawrence[16] of England has a different theory as to the high incidence of diabetes in the obese middle-aged man or woman. He suggests that the hyperglycemia and glycosuria are a reflection of the deficient capacity of the overloaded fat cells to form more fat from carbohydrate. Thirty years ago Allen and his coworkers[17] found that a partial pancreatectomy in dogs which had no apparent effect when they were eating in the usual way was followed by diabetes when the dogs were fattened by overfeeding.

In the detection of diabetes the chances are much better of finding the diabetic in the obese, and in those hereditarily prone to the disease. A study made of 25 known or suspected cases of diabetes by Ackerman at the Savannah River Plant of the DuPont Company disclosed 12 with abnormal blood sugars at the ½ hour to three hour post-cibal level. Of the 12, 9 or 75% were overweight.

Apparent Cure of Diabetes

Diabetes in some people is subject to wide variations in severity. It often becomes milder in associated kidney disease, in jaundice or following a cerebral accident. These variations are not in the same category as apparent cure. The latter means that to all intents and purposes the diabetic state is indetectable by present known methods of diagnosis. Glassberg[18] reports apparent cure in a case of diabetes associated with cirrhosis of the liver. In his case there seemed to be some evidence of a relationship between body weight and the improvement in the glucose tolerance curve, the curve improving as the weight dropped. The person with apparent cure retains the potentiality to develop the diabetic state again.

Since three cases of this type were seen by the authors within the past two years, it was thought worthwhile to report them. All were followed with post-prandial blood sugars. No glucose tolerance tests were done because they seemed to be frank diabetics to start with and after their post-prandial blood sugars were found to be normal over a period of months glucose tolerance was not done because of the danger of upsetting the delicate carbohydrate metabolism.

Case No. 1

A male diabetic age 55 years. Height 5' 10''. Weight 228 lbs. He had no knowldege of the disease until he was brought into St. Francis Hospital in diabetic acidosis. He had been drinking large quantities of fluid for the past three weeks. His family history was negative for diabetes. Blood sugar on admission was 750 mg. . . CO2 was not taken until the next morning and was 40 volumes per cent. With intensive therapy for acidosis the patient made a gradual recovery over a period of approximately three weeks. The following table shows the trend of the blood sugars and the gradual reduction of weight. With 35 lb. weight loss the post-prandial blood sugar became normal and has remained at that level since that time.

TABLE 1

HOSPITAL ADMISSION

Date	*Blood Sugar mg. per 100 cc*	*Time*	*Symptoms*	*Weight (lbs.)*	*Daily Insulin Units*	*Other Notes*
1951						
8-27	750 mg.	3 PM	Coma	228	320 plain	Blood urea 45 mg.
8-27	500 mg.	11 PM	Semi-coma	......	....	....
8-28	400 mg.	1 AM	Stupor	......	227 plain	CO2 40 vol. %
8-28	72 mg.	9 AM	Thirsty	......	....	Urea 72 mg.
8-28	150 mg.	1 PM	Aroused	......	....	....
8-29	450 mg.	8 AM	Disoriented	......	238 plain	Plasma acetone negative
8-30	530 mg.	8 AM	Disoriented	......	140 plain	
8-30	320 mg.	1 PM	Improving	......	....	Urinanalysis Alb. + + Sug. + + micro. neg.
8-31	265 mg.	8 AM	Improving	......	130 plain	Urea 19 mg.
8-31	220 mg.	3 PM	Improving	......	....	....
9- 1	147 mg.	8 AM	Improving	......	100 plain	X-Ray chest normal
9- 1	215 mg.	3 PM	Improving	......	....	....
9- 2	320 mg.	post-prandial	Improving	......	85 Globin	Diet full diabetic
9- 3	194 mg.	" "	None	......	90 Globin	
9- 4	276 mg.	" "	"	......	70 Globin	
9- 5	194 mg.	" "	"	......	65 Globin	Skull X-Ray negative
9- 6	276 mg.	" "	"	......	70 Globin	Pituitary negative
9- 7	194 mg.	" "	"	......	60 Globin	Diet: 100 P 60 F
9-10	164 mg.	" "	"	......	60 Globin	150 CH
9-13	187 mg.	" "			40 Globin	
			OFFICE FOLLOW-UP			
9-20	130 mg.	p. p. 2 hrs.		210	25 Globin	
9-24	133 mg.	p. p. 2 hrs.		206	20 Globin	Diet same
9-30	84 mg.	p. p. " "		193	12 Globin	
10 5	86 mg.	p. p. " "		192	8 Globin	
10-11	90 mg.	p. p. " "		191	No insulin	
10-17	84 mg.	p. p. " "		188	" "	
10-31	93 mg.	p. p. " "		187	" "	
1-10 52	106 mg.	p. p. " "		183	" "	
3- 2-52	80 mg.	p. p. " "		186	" "	
10- 9-52	112 mg.	p. p. " "		186	" "	
1-20-53	96 mg.	p. p. " "		188	" "	

Case No. 2

A male patient, age 52. Height 5' 6½''. Weight 180 lbs. Family history revealed one sister with diabetes. A blood sugar was taken because of extreme thirst, loss in weight of 15 lbs., in two months and itch. Fasting sugar 550 mg. Patient was given ten units of Globin Insulin and admitted to St. Francis Hospital. Marked visual disturbance resulted from the insulin which was discontinued before the patient left the hospital. After becoming an office patient weight reduction was steady and he was maintained on this reducing regime. Following a weight loss totalling 24 lbs., the blood sugar remained at normal level postcibally. The following table shows the trend of his successful loss in weight and the apparent cure of the diabetes.

TABLE 2

HOSPITAL ADMISSION

Date	*2 hr P. C. Blood Sugar mg. per 100 cc*	*Symptoms*	*Weight (lbs.)*	*Daily Insulin Units*	*Other Notes*
1950					
9-18	550 mg.	Very thirsty, itch, loss in wt.	180	10 Globin	Diet P 100 F 60
9-19	155 "	Slight Thirst		15 "	CH 150
9-20	201 "	" "		10	
9-21	160 "	Improved		10 "	Marked visual disturbance
9-25	110 "	No symptoms		10 "	
9-27	125 "	" "		8 "	
9-28	120 "	" "		6 "	Myopia
10- 2	137 "	" "		0	Vision better off insulin
10- 3	132 "	" "	176	0 "	Discharged
			OFFICE FOLLOW-UP		
10-10	128 mg.		173		Diet as above
10-17	130 mg.	No Symptoms	173	No Insulin	
10-24	108 "		171½		
10-31	126 "		170		
11- 7	83 "		166		
11-14	132 "		164		
11-21	115 "		162		
11-28	102 "		166		
12-31	98 "		163		
1951					
1- 4	113 "		161		
2- 5	115 "		160		
3- 8	108 "		158		
5- 2	112 "		157½		
8- 6	86 "		156		
12- 2	110 "		157		Diet P 110 F 70 CH 180 CH 20 H. S.
1952					
2- 6	104 "		155		
1953					
1-11	98 "		156		

CASE NO. 3

A male patient, age 42. Height 5' 6''. Weight 192 lbs. whose mother and brother have diabetes was admitted to St. Francis Hospital for surgical repair of an inguinal hernia. A diagnosis of diabetes mellitus was made, after the history revealed thirst, weakness and 15 lbs. of weight loss. The diabetes was brought under control and the patient returned for the operation at a later date. Insulin was discontinued and the patient, apparently cured, returned to normal blood sugar with absence of symptoms of diabetes. Table 3 shows the course of the disease in this patient, with the same result as in Tables 1 and 2.

COMMENT

Three obese diabetics who had initial blood sugars between 360 mg. and 750 mg. were reduced in weight until the blood sugars, 2 hours postcibal, were in the normal range (80-120 mg.). It was found that so long as the weight did not increase the sugars remained normal. No symptoms or signs of diabetes mellitus remained. After stabilization with unmodified insulin, globin insulin was used as the long acting insulin in maintaining control.

The use of the post-prandial sugar in treatment was found to be a satisfactory guide. No urinalyses were used to check the course of the disease.[2] After discharge of the patients from

TABLE 3

HOSPITAL ADMISSION

Date	*2 Hr. P.C. Blood Sugar mg. per 100 cc*	*Symptoms*	*Weight (lbs.)*	*Daily Insulin Units*	*Other Notes*
1950					
11- 5	360 mg.	Thirst-polyuria	192	10 units Globin	Original weight
11- 8	302 mg.	" "		10 " "	average
11-10	264 "	" "		10 " "	200 lbs.
11-13	322 "	No symptoms		20 " "	Urine acetone +
11-15	142 "	" "			Diacetic Acid Acid + + + +
11-16	266 "	Day of operation			
11-18	205 "				Acetone + Diacetic Acid + +
11-21	260 "	No symptoms		10 units Globin	Plasma acetone negative 11/21
11-22			187½	10 units Globin Insulin on discharge	Discharged 11/22 Diet 120 P 70 F 220 CH
			OFFICE FOLLOW-UP		
12- 3	208 mg.	No Symptoms	183	10 units Globin	Diet 90 P
12-15	142 "		181	8 " "	70 F
12-24	102 "		179	5 " "	160 CH
1951					
1- 2	96 "		177	No insulin	
1-30	–92 "		176½	" "	
2-27	–82 "		173	" "	
4- 3	–100 "		172	" "	
6- 8	–107 "		174	" "	
9- 7	–93 "		176	No insulin	
1952					
1-22	–85 "		178	" "	Diet
2-15	–84 "		178½	" "	100 P
3- 7	–82 "		179	" "	80 F
6- 9	–90 "		179	" "	180 CH
12-31	–102 "		177¾	No insulin	

the hospital each case was also followed by observation of the subjective and objective symptoms and signs. One patient lost 13 lbs. before the blood sugar became normal, the second case 12 lbs. and the third one 35 lbs., although 10 lbs. of the weight loss in the latter was undoubtedly due to the severity of the diabetes. Apparent cure has been reported before in the obese type of diabetes. Nutrition Reviews[19] report reduction of weight in 31 obese diabetics taking insulin. Six returned to normal glucose tolerance and 15 were able to discontinue insulin entirely.

CONCLUSIONS

1. Further observations on the use of the post-prandial sugar lead us to believe that it is superior to the fasting sugar as a guide in the treatment of diabetes mellitus. Its value in diagnosis is unquestionably superior—11% more diagnoses being made by its use. Since the normal post-prandial sugar is not over the fasting level[1,3,20] the attainment of this level

in the three cases reported gives us information that could not be obtained by employing the fasting blood sugar alone. The return to normal post-prandial levels gave us an excellent index of the patients' metabolizing power, after a meal was taken. Sindoni[1] has emphasized this latter point, as one of the important reasons for treating diabetics with the postcibal sugar as a guide. He also states that the fasting sugar 8-12 hours after a meal gives us absolutely no information of this character, being too far removed from the previous meal.

2. The frequency of obesity occurring with diabetes is often underestimated. Nine out of ten diabetics, whose diabetes developed after the age of twenty, have had obesity before the onset of the disease.[21] When the obese diabetic patient understands the danger of his overweight state in terms of mortality and morbidity, he should have a good incentive to reduce. If he is made to realize the frequency of the vascular complications of the diabetic state, and how these complications can be reduced by getting himself in the best possible physical condition, then a great service will be done. The probability of reducing the blood sugar to normal by the weight reduction is also a good selling point and may make the patient as happy as the three cases reported in this paper. If difficulty is encountered in weight reduction, there is no contraindication to the use of the anorexigenic drugs as an aid to caloric restriction.[19]

3. Periodic preventive medical care is necessary in cases of this type, but no more so than with all types of diabetes mellitus. The disease in its insidious but harmful course can be subdued, not only by reduction of weight, but also by the application of the general hygienic measures which have come to us through the years of trial and error, diet therapy and research. Insulin and diet are not the sole answers to the diabetic problem. The teamwork of the physician, dietitian, dentist, podiatrist and medical specialist, used preferably in the preventive capacity is the best solution we have today to the problems generated by this mysterious disease.

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SURGICAL CONSIDERATIONS OF THROMBOEMBOLIC PHENOMENA*

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In discussing the surgical aspects of thromboembolic phenomena those acute conditions that are secondary to thrombosis and embolism in the venous and arterial systems will be considered. Chronic diseases of the arterial system, such as thrombosis secondary to arteriosclerosis, thromboangiitis obliterans, and periarteritis nodosa or surgical considerations of Raynaud's disease, and vascular lesions secondary to cervical rib will not be discussed. Regarding the venous system, we will be concerned with venous thrombosis of various types, and in the arterial tree with the acute embolus.

The terms "thrombophlebitis", "phlebitis" and "venous thrombosis" have been used interchangeably for several years. In the literature at the present time, two distinct types of venous thrombosis are recognized: (1) thrombophlebitis; (2) phlebothrombosis.

In order to have a working basis for discussion of various types of thrombotic disease occurring in the venous system, I would like to review briefly a clinical classification of thrombophlebitis based on etiology.

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CLINICAL CLASSIFICATION OF THROMBOPHLEBITIS BASED ON ETIOLOGY

- I. **Local thrombophlebitis**—due to direct injury to vein of the wall or pre-existing known disease of the wall in which thrombosis occurs
  - (a) **Chemical thrombophlebitis** — sodium morrhuate, sodium ricinoleate, quinine and urethane, hypertonic solutions such as glucose and saline
  - (b) **Mechanical thrombophlebitis**—occurs at site of contusions, lacerations, fractures, from strain or effort ("thrombophlebite axillaire par effort")
  - (c) **Local inflammatory thrombophlebitis**—present in smaller veins as part of inflammatory non-suppurative lesions (Tb, lues, granulomas, etc.)
  - (d) **Suppurative thrombophlebitis**—result of involvement of the wall of the vein by a severe suppurative disease caused by such organisms as streptococci, staphylococci, and pneumococci. Thrombus is highly infective and contains many bacteria which disseminate throughout blood stream.
    - 1. Suppurative pelvic thrombophlebitis
    - 2. Suppurative pyelphlebitis
    - 3. Suppurative jugular thrombophlebitis
    - 4. Cavernous sinus thrombosis
  - (e) **Thrombophlebitis in varicose veins**—localized inflammatory type—sterile lesions in these veins
  - (f) **Ischemic thrombophlebitis**—secondary to acute arterial occlusion or advanced chronic occlusive arterial disease in which there is extensive secondary thrombosis of veins
- II. **Secondary complicating thrombophlebitis**—appears to be initiated by rest in bed—prevented by inhibition of clothing mechanism
  - (a) **Post-partum thrombophlebitis** ("phlegmasia alba dolens"—"milk-leg") A type of ilio-femoral thrombophlebitis, a lymphangitis secondary to pelvic cellulitis
  - (b) **Post-operative thrombophlebitis** — "phlebothrombosis" and inflammatory thrombophlebitis occur 0.05—10.5% after abdominal operations 1.25—12.5% after gynecologic operations — (by various authors) Clot forms first and secondary phlebitis of vein occurs

Site of Clinically Diagnosed Post-Operative Thrombophlebitis

Iliofemoral	254
Short saphenous and deep veins of calf	486
Long saphenous	155
Superficial veins and small varices of leg	14
Veins of arm	7
Other veins	23
Total	939

  - (c) **Thrombophlebitis as a late complication of severe injury**—Occurs several days or weeks after injury—Analogous to post-operative thrombophlebitis
  - (d) **Thrombophlebitis complicating infectious disease**—pneumonia, typhoid, influenza, acute tonsillitis, pharyngitis, Tb, chronic ulcerative colitis, pyelonephritis, appendicitis, acute infectious arthritis, exanthemata, etc.
  - (e) **Thrombophlebitis complicating blood dyscrasias**—polycythemia vera, chlorotic anemias, myelogenous and lymphatic leukemia
  - (f) **Thrombophlebitis complicating pregnancy**—rare—may be due to increased venous pressure and slowing of venous blood flow.
  - (g) **Thrombophlebitis complicating non-infections systemic disease**—seen in carcinoma and congestive failure in late stages due to venous stasis.
- III. **Primary thrombophlebitis**—no known cause
  - (a) **Recurrent idiopathic thrombophlebitis** (Thrombophlebitis migrans)—Seen in large veins of legs, mesenteric, pulmonary, splenic veins—appears to jump from one vein to another—Average age 40 years, 88% men
  - (b) **Idiopathic thrombophlebitis of non-recurring type**—Single episode in large vein of otherwise healthy adult
  - (c) **Thrombophlebitis associated with thromboangitis obliterans**—Occurs in 40% at some time in course of this disease.

As has been noted, phlebothrombosis is classified as a type of postoperative thrombophlebitis. This is a type, usually asymptomatic, in which the clot is loosely attached to the vein wall, is quite friable, and is composed mainly of fibrin with some cellular elements. There is, therefore, a greater predisposition to becoming detached, producing infarction or fatal embolism. It is believed by some that this type rarely remains a simple process wherein a clot is present within the lumen of a vein, but that in several hours a secondary phlebitis developes as a reaction to the thrombus. It may be, therefore, that "phlebothrombosis" as defined by Ochsner and DeBakey exists as such for only a short time, and then actually becomes a thrombophlebitis.

There is considerable clinical and pathological evidence that phlebothrombosis usually occurs in more than one episode. If the thrombus developes in a small vein, part or all of it may become detached soon after its formation to become a small non-fatal embolus. If it is not detached, or only part of it becomes detached, the clinical signs and symptoms of thrombophlebitis will develope in that particular vein. A second episode may occur in which the thrombus forms in a larger, more proximal vein, and this clot can become detached to produce a larger or fatal pulmonary embolus. If the first episode occurs in a large vein, such as the external iliac or femoral, the first and only sign may be a fatal pulmonary embolus. It has been noted clinically that a non-fatal pulmonary embolism may precede the clinical evidence of thrombophlebitis by one to three days, or occasionally, as long as a week. Thrombosis may occur in only one leg, or both legs simultaneously, or first one leg then the other, or in veins in other parts of the body. Pulmonary embolism may occasionally be seen in association with the local or primary types of thrombophlebitis, but is seen more frequently in the secondary types, and more particularly, in the post-operative variety.

It is, then, evident that postoperative venous thrombosis is a special type as pointed out by Ochsner, and at least at first is a phlebothrombosis. It is characterized by a spontaneous clotting of the blood, the clot being only loosely connected to the vessel wall. The formation of this type of clot is facilitated by a marked increase in platelet agglutination, by an increase in the erythrocyte sedimentation rate (ESR), and changes in the plasma volume. (Neuda) These changes are noted first, as a rule, on the fourth postoperative day, and are thought to be due to entrance of tissue fluids into the blood as a result of trauma from surgical procedures. A physical state of the blood that would favor thrombosis is then produced. This assumed danger of thrombosis can logically be prevented by the use of anticoagulants. However, there are rarely any signs or symptoms of definite enough significance in this type of thrombosis to always allow the clinician to know of its occurrence, and, therefore, institute prophylactic therapy. Only too often the first manifestation of postoperative thromboembolic disease is pulmonary embolism. However, thrombosis after operation is of rather rare occurrence, and embolism is still more rare. Also, not any thrombosis, but a special type, leads to embolism. For that reason attention should be directed to the formation of this type of clot postoperatively, so that as few cases as possible will require active treatment.

From a practical standpoint, prevention consists in the application of a firm, but not constricting, elastic bandage from the sole of the foot to at least the knee, and preferably higher. This theoretically should be applied to all patients, but many surgeons have modified this to include only the following: (1) those with a history of previous thrombophlebitis or pulmonary embolism; (2) those with evidence of varicosities whether symptomatic or not; (3) elderly patients; (4) those with presumptive evidence of early thrombosis postoperatively, i.e., (a) heaviness or flabbiness of lower extremities (b) acceleration of pulse rate without other signs of congestive failure (c) slight low grade fever without signs of infection (d) mild tenderness in calves of one or both legs. These latter signs of thrombosis respond well to the use of an elastic bandage, and, inasmuch as we assume thrombosis has occurred, anticoagulants are given to prevent further thrombosis and extension of the clot.

The reason an elastic bandage is of definite help has been explained by Neuda as follows: the veins of the lower extremity resemble medium sized arteries in that the tunica media contains an increased amount of muscle. The entire vein wall derives its blood supply from the vasa vasorum which penetrate the muscle coat in order to reach the intima. The reason for this thick muscle coat is that the hydrostatic pressure is higher in the lower extremities than elsewhere, and this assists the blood to return to the heart against gravity. However, in the supine position, the pressure is only one-tenth of that in the standing position, so these veins collapse and the muscle fibers compress the vasa vasorum. The oxygen supply is consequently reduced in the vein wall, and particularly the intima, producing anoxic changes in the tissue cells.

Neuda further believes that this is an important factor in the initiation of the clot and influences proper healing of it. Consequently, proper pressure from an elastic bandage will prevent the compression of the vasa vasorum by the muscle layer, and thrombosis can be prevented, or, if already present, can be influenced to heal in a normal manner by means of a firmly attached thrombus which undergoes organization and fibrosis, and therefore, will not embolize. The superimposed pressure of the elastic bandage causes counterpressure on the muscle layer allowing the vasa vasorum to remain open.

Therefore, it is believed that the trauma of any surgical operation causes tissue fluid to be introduced into the blood that becomes altered antigenically is some way, in a small number of patients, to cause increased platelet agglutination, increased erythrocyte sedimentation rate and alterations in plasma volume. This in itself is not sufficient in all cases to cause thrombosis, but with anoxic changes in the intima due to collapse of the veins, a loosely attached clot may form with its predisposition to embolization.

Further prevention of postoperative thrombosis consists in avoidance of pressure on the legs during operation, avoidance of excessive pressure from tight bandages, dressings or adhesive tape, instituting exercises for the legs and feet which should be started soon after operation, massage to the legs daily, as well as early ambulation.

The management of the patient when definite thrombosis has been known to have occurred consists in early institution of anticoagulant therapy. Heparin should be given immediately, either intravenously in 50 mgm. doses q. 4 hr. or 250 mgm. in oil intramuscularly in daily doses, and continued for at least 36 hours. A blood prothrombin time should be obtained, and dicoumarol given at the same time in an initial dose of 300 mgm. Subsequent doses will depend on the level of the daily prothrombin time, and this should be kept between 30% of normal (27 seconds) and 10% of normal (60 seconds) by the Quick method or one of its modifications. Experience with a large group of cases has shown that thrombosis is inhibited in that range.

Below 10%, bleeding from mucous membranes and beneath the skin may occur. Anticoagulants should not be given until 48 hours postoperatively to allow firm clots to form at the areas of hemostasis. However, the indications for their use are not common until after this period. When the prothrombin time has reached a therapeutic level, heparin is discontinued, and dicoumarol or one of its synthetic derivatives is used alone for a week or ten days when all evidence of thrombosis has disappeared. Besides the use of anticoagulants in patients having demonstrable thrombosis or a non-lethal pulmonary embolus, firm dressings should be applied from the toes to the groin in the form of warm, moist flannel strips. In those with suspected thrombosis, or with minimal signs, an elastic bandage can be applied as already described.

Femoral ligation has recently been practiced by surgeons, and is still advocated by some, when pulmonary infarction or venous thrombosis are present. Several objections to this treatment rather than the use of anticoagulants have become evident during recent years. Bilateral femoral ligation does not prevent embolism from a second episode of thrombosis in the internal iliac veins or in veins other than in the legs. In cases of pulmonary embolism without evidence of thrombophlebitis in the legs, it is not certain that the embolus came from one of the leg veins. The incidence of fatal embolism is only 6% in cases of thrombophlebitis of the short saphenous and veins of the calf, and is quite rare from varicose veins, or the long saphenous vein. It is obvious, then, that many unnecessary operations would be done if bilateral femoral ligation were done in all such cases, and a second major operation is added to a patient who is already in a postoperative state.

Ligation of the inferior vena cava, however, seems to have a place in the therapy of thrombo-embolic disease. In suppurative pelvic thrombophlebitis, we have a condition characterized by the formation of a firm, adherent clot in the affected veins in which there is a greatly lessened incidence of lethal embolism. The clots that are formed are septic and tend more frankly to become purulent. When liquefaction takes place, infected emboli are liberated in showers. Pyemia or septicemia result and the disease often tends to be fatal. The thrombi are almost equally distributed between two primary highways of venous return: (1) the uterine, draining into the hypogastric and common ilian and then to the inferior vena cava; (2) the ovarian, draining directly into the inferior vena cava on the right, and indirectly by way of the left renal on the left. In a recent report of

70 cases of pelvic septic thrombo-phlebitis proven by palpation of the veins or histologic examination of resected ovarian veins, clinical evidence of pulmonary embolism was found in 27 with X-ray confirmation in 24. In four of the 27 cases, lung abscess occurred, requiring lobectomy in 2 and lobotomy in one. In two cases, subacute bacterial endocarditis occurred, and in one, cerebral abscess. In the 8 cases that died, death resulted from pyemia and septicemia, and in none was massive pulmonary infarction present.

The diagnosis is often difficult, but signs and symptoms indicate a septic process and thrombosed veins can be palpated in the vagina and pelvis in 60% of cases. Surgical treatment is indicated in those who fail to respond to adequate medical treatment within 4 or 5 days in whom a pulmonary infarct has occurred. This consists in ligation of the right ovarian vein and inferior vena cava above the clot, but always below the renal vein. The transperitoneal approach is taken if no previous hysterectomy or bilateral salpingoophorectomy has been done. A right lumbar sympathectomy is done at the same time. If the left ovarian vein is also involved, this is ligated above the clot and a left lumbar sympathectomy is done. If previous hysterectomy has been performed, a right extraperitoneal approach is taken, the vena cava ligated and a right lumbar sympathectomy done.

Other indications for inferior vena cavae ligation are present in those patients in whom future extensive surgery is anticipated, and who have already suffered a recent embolism, and in those cases where thromboembolism cannot be controlled by the usual anticoagulant therapy because of some contraindication to its use. Foley, the urologist, has recently used this procedure as a prophylaxis against pulmonary embolism in the coagulation diathermy treatment of infiltrating bladder tumors. In these cases, the right extraperitoneal approach is used.

Another disease for which active surgical treatment is advocated, at the present time, is arterial embolism. This results from mural thrombi as a result of auricular fibrillation or myocardial infarction, from thrombosis at the site of an atheromatous plaque, or aneurysm of the aorta. This is not a common phenomenon, fortunately, and no one surgeon has had a large experience with its surgical treatment. Patients suffering from this condition are usually poor surgical risks because many are of advanced age and most have severe cardiac disease or other serious conditions. The emboli lodge at the bifurcation of vessels, as a rule, and, consequently, they will be found at the bifurcation of the aorta, common iliacs, or common femoral arteries. The signs indicating their presence, i. e., sensory, motor, and temperature changes will be below the site of embolus.

The role of the surgeon is to localize the embolus and remove it by means of an incision in the affected artery at this point. Bleeding is controlled proximally and distally by artery clamps or the application of soft rubber tubes. Heparin is administered intravenously before, during, and after the operation in sufficient dosage to keep the coagulation time at 15 minutes. Arteriectomy, removing the segment containing the embolus, may be necessary if embolectomy is not possible due to its adherence to the intima.

The results from this procedure may be considered disappointing when it is realized that the hospital mortality is high, and that eventual amputation after peripheral embolectomy is not infrequently necessary. The best results can be expected if the duration of the clot is less than eight hours; if the site of the obstruction is at the bifurcation of a large vessel; if a normal arterial wall is present at the site of the embolus; if there is an absence of multiple emboli; and if the patients are relatively young, particularly those with auricular fibrillation.

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THE EARLY DIAGNOSIS OF POLIOMYELITIS

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Acute poliomyelitis is a systemic disease of virus etiology. The various strains of viruses thus far identified have a predilection for the central nervous system and the voluntary muscular system. The disease is essentially a medical problem and competent and adequate medical management is a prerequisite to obtain results therapeutically profitable to the patient. This medical management must be augmented by conscientious nursing care, high protein diet, and intelligent use of physiotherapy directed to the pathologic physiology in the muscles.

The main reliance for diagnosis is placed upon complete physical and neurological examination, which must be made as soon as possible.

It is generally understood that during poliomyelitis epidemics 80 per cent or less of those who are susceptible to poliomyelitis may develop the abortive type of the disease in which the symptoms may be transient sore throat, nausea, headache, and listlessness. These symptoms clear up entirely within 5 to 7 days so that these patients are rarely diagnosed or reported as poliomyelitis. It is only in research projects that the virus has been isolated from the nose and throat washings or from the feces of such patients and the spinal fluids have been found positive.

Twenty per cent or more of those who are susceptible in any outbreak will have one of the several types of reportable poliomyelitis. Fever is usually present. This may subside in 2 or 3 days and then reappear, or it may appear together with the symptoms of pain and stiffness in the muscles of the limbs, back, or neck. The temperature usually drops in 5 to 7 days, but the other symptoms continue and such a patient is diagnosed as a non-paralytic poliomyelitis and kept under isolation according to prevailing public health regulations. Spinal fluid findings of pleocytosis, increased total protein and positive globulin will confirm the diagnosis. Positive spinal fluid findings help to confirm the diagnosis, but negative findings are of no significance in the presence of clinical signs and symptoms.

This patient must now be watched carefully for any paralysis or bulbar symptoms, which may appear any time from the second to the eighth day after the onset of the symptoms. The early symptoms of respiratory and circulatory failure must be appreciated and treated immediately, if bulbar cases are to be saved. The severity of the paralysis cannot be predicted. As a rule, no extension of the paralysis is seen after the eighth day, but failure of the fever to subside will usually means extension of the disease. Patients must be observed several times a day during the acute, spreading phase. This is done best with the patient in a hospital which is staffed with experienced personnel and which is equipped with oxygen tents, oxymeters, electrical suction machines, resuscitators, respirators, spirometers, rocking beds, intermittent positive pressure machines, electrophrenic respirators, an electromyograph machine, tracheotomy and bronchoscopy facilities, rehabilitation apparatus as wheel chairs and walkers, hot pack machines, tubs or a Hubbard tank for hot baths, and facilities for orthopedic appliances.

The signs of bulbar poliomyelitis are those presented by partial or complete involvement of any of the cranial nerve nuclei. The cranial nerves and their functions are:

I. Olfactory—Smell

II. Optic—Sight

III. Oculomotor—Eyeball muscles except IV and VI; upper lid, constrictor of pupil and muscles (ciliary) of accommodation. Paralysis causes ptosis of the eyelid; eye deviates out and downward; diplopia; pupil is fixed to light and accommodation.

IV. Trochlear—Superior oblique moves eye down and out.

V. Trigeminal—Muscles of mastication. Sensation to face and mucous membrane of conjunctiva, nose, mouth, tongue and uvula. Also taste fibers to anterior two-thirds of tongue.

VI. Abducens—External rectus moves eye outward.

VII Facial—Facial muscles except those supplied by the V. Paralysis causes inability to wrinkle forehead, to close eye, to whistle, or to blow out the cheeks.

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VIII Acoustic—Hearing and equilibrium. Paralysis causes tinnitus and nystagmus.

IX Glossopharyngeal—Supplies gag reflex, and taste to the posterior third of the tongue.

X Vagus—Supplies heart, lungs, respiratory system, and all abdominal organs except pelvis. Controls speech, swallowing, and soft palate.

XI Spinal Accessory—Supplies trapezius and strenomastoid. If paralyzed, patient cannot shrug shoulders or lift head from supine position.

XII Hypoglossal—Muscles of the tongue. Tongue deviates to the paralyzed side.

An experienced nurse must be constantly on the watch for such signs as rapid or irregular pulse, hypertension, restlessness, shock, dyspnea, cyanosis, anxiety, apprehension, shallow or irregular respirations, nasal speech, inability to swallow, severe drowsiness, regurgitation of fluids through the nose, twitching of muscles, or the use of neck muscles in inspiration. Paralysis of the upper extremity may be the beginning of paralysis of the diaphragm on the same side through the involvement of the phrenic nerve. Loss of the abdominal reflexes may mean paralysis of the lower six thoracic segments of the spinal cord and paralysis of the abdominal muscles which are of major importance in respiration.

The differential diagnosis must be made carefully as soon as the patient is seen. There are many acute illnesses which simulate poliomyelitis. About 50 different diseases were diagnosed in patients admitted for poliomyelitis in our clinic during the past 12 years. This disease is most frequently misdiagnosed as "summer grippe."

The following table summarizes the signs which, when present, usually exclude poliomyelitis. The disease which usually simulate this disease are also listed.

Signs Which Usually Exclude Poliomyelitis

Signs	Commonly Confused Conditions
1. Rash of any kind	Meningococcic meningitis and petechia; Rocky Mountain spotted fever.
2. Swollen glands	Infectious mononucleosis, neuroblastoma, mumps meningoencephalitis.
3. Swollen joints	Acute arthritis, rheumatic fever.
4. Localized joint or bone tenderness	Bone tumors, osteomyelitis, rickets, scurvy, tuberculosis, epiphysitis, cervical or lumbar disc.
5. Bleeding gums	Blood dyscrasias, scurvy.
6. Unilateral or bilateral eyeground changes	Brain tumor or abscess.
7. Positive blood or spinal fluid serology	Congenital or acquired lues.
8. Purulent spinal fluid	Meningitis—influenzal, meningococcic, pneumococcic, staphylococcic, streptococcic.
9. Hemorrhagic or xanthochromic spinal fluid	Cerebral accident, tumor in brain or spinal cord.
10. Convulsions	Encephalitis, epilepsy, meningitis, mumps, spastic paraplegia, tuberculosis, cerebral thrombosis.
11. Extreme drowsiness without muscle spasm or muscle paralysis	Coma-diabetic, uremic, emcephalitic.
12. Sensory changes to heat, cold, pain, touch, vibration, or position	Arachnoiditis, brain tumor, hysteria, nucleus pulposus, peripheral neuritis, peroneal palsy due to syphilis, spinal cord tumor, syringomyelia, transverse myelitis, multiple sclerosis.
13. Extreme weakness without muscle paralysis	Muscular dystrophy, myasthenia gravis, progressive muscular atrophy.
14. Septic temperature	Influenza, pelvic inflammatory disease, pneumonia, septicemia, Still's disease, subacute bacterial endocarditis, leukemia, typhoid fever.
15. Paralysis of soft palate and muscles of accommodation	Myasthenia gravis, post diphtheritic paralysis.
16. Jaundice	Acute infectious hepatitis, Weil's disease.
17. Other conditions confused with poliomyelitis	Appendicitis, aspetic meningitis, Bell's palsy, laryngotracheo-bronchitis, lymphocytic choriomeningitis, New Castle disease.

SUMMARY

Clinically, poliomyelitis may be abortive, non-paralytic, or paralytic. The paralytic types may be spinal, bulbar, or encephalytic in the order of greatest frequency. The characteristic finding in the non-paralyzed patients is muscle shortening due to muscle rigidity or "spasm"; this is more prominent in the entire posterior area of the body. This muscle contraction is not necessarily related to any paralysis of any of the "opposing" muscles groups. In the paralytic patients the characteristic finding is, in addition to the muscle shortening noted in the non-paralytic, a flaccid paralysis of muscle groups, asymmetrically located.

Recovery is spontaneous and complete only in the abortive type. The other types require special muscle relaxation so that a full range of motion of all joints is obtained and maintained, special muscle exercises, special nutrition, and controlled prolonged medical observation in order to obtain maximum recovery and maximum use of the neuromuscular power the patient still retains. The amount of special care a patient will require will depend on the severity of the involvement.

The mortality rate is generally influenced by the previous experience of the locality-early diagnosis, early hospitalization, and the experience of the hospital personnel. For these reasons it is always higher in an area where an outbreak appears for the first time. Delaware has had several outbreaks of poliomyelitis—in 1944, 1947, 1948, 1952.

THE DELAWARE ACADEMY OF MEDICINE

Past, Present, and Future

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As a background for tonight's discussion, some interesting educational and medical dates in Delaware seem appropriate.

1776—On February 3 the Medical Society of Delaware was incorporated under the name "The President and Fellows of the Medical Society of Delaware." First president was Doctor James Tilton. The Tilton home was on the property which is at present the University Club, at Ninth and Broom Streets. Founded in 1776, the Medical Society of Delaware is the second oldest State Medical Society in the country: the first was New Jersey, founded 1766.

1843—The University of Delaware was founded as Newark Academy.

1888—The Memorial Hospital was founded The Wilmington Homeopathic Hospital.

1889—Delaware State Hospital at Farnhurst.

1890—The Delaware Hospital in Wilmington was founded.

1907—Milford Memorial Hospital in Milford, Delaware.

1910—The Wilmington General Hospital, at first located at Eighth and Adams Streets.

1916—Beebe Hospital in Lewes.

1924—St. Francis Hospital in Wilmington.

1927—The Kent General Hospital in Dover.

Prominent among Chiefs of Service in 1928 in the Wilmington hospitals were such names as James Draper, George Forrest, Paul Lukens, McEntee, John Palmer, Henry Ward Briggs, Frank Pierson, Albert Robin, Willard Springer, and Joseph P. Wales. There were no residencies in any of the hospitals and, indeed, only a few interns. At the Delaware Hospital there were perhaps four or five interns; at the Memorial Hospital two or three; and one or two at the Wilmington General, and the St. Francis Hospital was just starting. There was not a medical library in the entire state of Delaware. No one individual had more than the bare necessities of a working library of his own. For any reference work it was necessary to go to Philadelphia or Baltimore.

In such a state of affairs, the need for a medical center and a medical library seemed urgent to the few individuals who later became the founders of the Delaware Academy of Medicine. According to the history of the Academy as written by Dr. William H. Kraemer for its tenth anniversary celebration May 9, 1940, the founders first met in Dr. Flinn's office at 503 Delaware Avenue on December 12, 1929. Numerous meetings were held after that mainly in the Y. M. C. A. over the next several months and the next year. With the onset of the great national economic depression in 1930, the likelihood of the establishment of an Academy of Medicine with a building of its own seemed very remote. However, early in 1931 Mrs. Henry B. Thompson and others became interested in saving the old Delaware Bank Building at Sixth and Market Street which was about to be razed. That building was completed in 1816 and in 1865 became the National Bank of Delaware, the fourth oldest National Bank in the country. With this history, and because it was a particularly good example of colonial architecture, citizens in the community were anxious to save it. They therefore were very glad for it to be used as the home of the Delaware Academy of Medicine. In spite of the depression, $36,000 was collected and the cornerstone was laid on June 1, 1932. With the exception of a few alterations for modern use, the building was erected on its present site exactly as it stood in 1816. The original hand-hewn rafters joined with wooden pegs, the staircase, floors and trim and the original iron railing surrounding the building have all been preserved. The site was purchased from Joseph Bancroft and Sons Company. This property can be traced back through the Loverings and the Shallcrosses to Thomas Gilpin, Jr., who, on the "Sixth day of the Sixth month in the Sixth year of the reign of our Sovereign, George the Third over Great Britain, etc., King, etc., and in the year of our Lord 1766" (June 6, 1766) received the land by virtue of a patent from the commissioner of property under the Honorable Thomas Penn and Richard Penn, proprietors of the Counties of New Castle, Kent and Sussex on Delaware and the Province of Pennsylvania. Thomas and Richard Penn were the sons of William Penn and his second wife, Hannah Callowhill. The tract patented to Gilpin was of one hundred eighty acres and extended southerly from the Brandywine Creek and northerly from the Rattlesnake Run.

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*Abstract of an Address given at the Delaware Academy of Medicine at the Annual Meeting, Tuesday, January 27, 1953.

The cornerstone laying and dedication of the building took place on June 1, 1932. The cornerstone was laid by Mayor Frank C. Sparks after the deed to the property had been presented by Mrs. Thompson to Dr. Lewis B. Flinn, then President of the Academy.

Mrs. Thompson told the interest shown in preserving the bank structure and how some people contended that it would be impossible to raise funds then during the depression. However, at that time, about $33,000 had been raised.

The ceremonies were opened with an invocation by the Reverend Dr. Charles F. Penniman, then rector of Trinity Episcopal Parish, and closed with a benediction by the Rev. J. Francis Tucker, at that time pastor of St. Anthony's Church. Dr. William H. Kraemer presided.

Prior to the laying of the cornerstone, the deed and other articles given by Mrs. Thompson were placed in a copper box, together with a roster of the Delaware State Medical and Dental Societies, a copy of the original resolutions of the Delaware Academy of Medicine, copies of medical journals, currency of that date and clippings from recent issues of the local papers telling of plans for the cornerstone laying.

The Academy, however, was in a very precarious financial status in 1933 and 1934 because of an outstanding debt of $12,000 for reconstruction expense. It is felt that had not a third group been formed to underwrite this $12,000 the whole project might have been lost. It may be of interest to again record the names of those individuals who formed this holding company—Mrs. Henry B. Thompson, Mr. Henry B. Thompson, Mr. Daniel F. Shields, Jr., Dr. Lewis B. Flinn, Mrs. Ernest duPont, Dr. Victor D. Washburn, Allen L. Lauritson Company, Mr. Thomas Donaldson, Dr. Charles P. White, Dr. Charles L. Reese, Dr. Frank L. Grier, Mr. John T. Chandler, Jr., Dr. William H. Kraemer.

The founders of the Academy were: Drs. Julian Adair, O. S. Allen, J. M. Barsky, W. E. Bird, J. D. Brown, L. B. Flinn, G. W. K. Forrest, W. H. Kraemer, W. O. LaMotte, E. R. Mayerberg, J. H. Mullin, W. M. Pierson, J. G. Spackman, A. J. Strikol, C. E. Wagner, and V. D. Washburn.

A librarian, Mrs. Ava Taylor Watson, was engaged September 1, 1933. Mrs. Watson loved the Academy of Medicine and spent great thought and energy in its behalf. She was always suggesting things of interest for the members and trying to facilitate use of the library and doing her very best to insure that the Academy carried forward its purposes and functions. Her untimely and sudden death in 1938 was a great loss to this institution. Upon Mrs. Watson's death, Mrs. Edward Mendenhall very kindly stepped into the breach and acted as librarian for a period of three years. After the onset of World War II which, incidentally, took into military service over 35 per cent of the Academy's membership, Mrs. Gerald Beatty acted as part-time librarian during the war years and was of tremendous aid in making it possible for the institution to weather the difficulties of the war. In spite of the sudden decrease in membership and necessary decrease in activities in use of the Academy, some progress was made even during this period. Mrs. Beatty continued for a short time after the war until the present custodian, Mr. Syrovatka, arrived. The latter had had considerable banking, legal, and political experience in Prague, various European countries and Mexico, and found himself finally in this country. Our government thought well enough of him to have a special bill passed through Congress to grant him asylum here and give him the opportunity to acquire citizenship. He has been of great service to the Academy and has made many valuable and constructive suggestions.

The list of presidents of the Academy is as follows: Dr. L. B. Flinn, 1930-1941; Dr. William Kraemer, 1941-1945; Dr. Edgar R. Miller, 1946-1947; Dr. G. A. Beatty, 1948-1949; Dr. B. M. Allen, 1950-September 1951; Dr. W. M. Pierson, September 1951-January 1952; Dr. L. C. McGee, 1952-1953.

It may be of interest to note that in the president's report of November 1936 the annual income totaled $3500, with $1650 from members, $450 from the Endowment Fund, and special contributions $1400. At that time the librarian's salary was $900, there were about 120 members, and 120 current periodicals. Contrast this with the president's report at the present meeting which indicates $3,000 from membership dues, $5,000 from contributions from associate members, $330 only additional contributions by the full active members, income from the Endowment Fund or Trust Fund $1369, and contributions for the use of the building $1670, total receipts of $12,000.

During the past year, sixteen new members have joined the Academy. The total professional membership is now 220, the number of associate membership is 125. The library has acquired 52 new volumes and 11 new periodicals during the current year and the use of the library by the members has increased 20 per cent during the past year. The president's report also indicates that there has been considerable activity in the form of courses, lectures to the public, and special scientific meetings conducted by the Academy.

What can we legitimately foresee as to the future of the Delaware Academy of Medicine? First, let us go back to the original Certificate of Incorporation. From this document I would like to quote three sentences:

1. The purpose of the Academy is "to foster among its members interest in medical, scientific, literary, and educational conditions and to render service without recompense towards these ends in the State of Delaware."

2. The Academy was organized "solely for the purpose of rendering service without recompense and for charity to scientific, literary and educational ends."

3. "To aid, cooperate with, or endow any individual, association or corporation engaged in charitable or educational work within the State of Delaware; to collect statistics and information and to publish and distribute documents, reports and periodicals to carry on such educational and charitable work along the lines of its corporate purposes as it may deem wise; to provide for and furnish public instruction in hygiene, sanitation, and the laws of health; to conduct lectures and meetings, to acquire and maintain a library and in general to do and perform all things necessary or convenient for the objects of the corporation or any of them."

I suggest, therefore, that the functions of the Academy are four: (1) a meeting place; (2) a library; (3) education; (4) research. Let us examine each category briefly and suggest how best we may improve and develop the function of each. The Academy is naturally a meeting place for regular and special meetings of the Academy. It is also a meeting place for some smaller groups. A Journal Club, for instance, has been meeting regularly once a month at the Academy ever since the war. Prior to the war, a number of sectional meetings were held, particularly a section on ophthalmology, another on obstetrics and gynecology. At that time there were very few sectional meetings held in the hospitals. The development of the residency program and a large number of departmental meetings and conferences has largely consumed the time and interest of the specialty groups so that sectional meetings in the Academy have not been renewed. Perhaps the Academy, as part of its educational program, should work more closely with these various special groups to give library service and other educational features as may be practical from time to time. Meetings have also been held at the Academy for the public and other interested groups on medical and related matters. The auditorium, at times, is very nearly full with some of the regular meetings of the regular medical organizations, such as the New Castle County

Medical Society. The question has arisen as to whether the auditorium should be enlarged or another large auditorium added to the north side of the building to accommodate larger and special medical meetings which currently have to be held elsewhere. This matter needs further consideration.

The function of the library can properly be divided into three—the reading room, an extern service, and a cooperative library plan. The reading room includes service of a librarian. The difficulty arises in the membership having insufficient time to spend in the reading room during library hours. Previously, keeping the library open one or two evenings a week has been explored but it has not been found worthwhile. The librarian is, however, available over the telephone and will very gladly look up certain requested literature or journals and have the material available in one pile so that the member may call and either read this matter in the reading room or take it away according to the rules laid down by the library committee.

I feel very strongly that the extern service should be developed and brought to the attention of all members. If, by writing or by telephone to the librarian, certain journals or reference books are requested, the Academy should make arrangements for this material to be sent by messenger to the member's office, home, or hospital if it is within close range; otherwise by mail. If this type of service were improved so that a member could have on his desk within a few hours or certainly by the next day certain literature in which he was interested at the moment, the Academy would be doing a great service and I am sure the library would be found of much greater use than it has been heretofore.

In line with this so-called extern service, a cooperative plan with other libraries in the area should be developed. We have nearby many special libraries particularly having to do with chemistry or physics or other special branches; for instance, at the University of Delaware, at the Hercules Powder Company Library, at several special libraries of the DuPont Company, the Alfred I. duPont Institute, etc. It is not necessary or desirable that the Academy should attempt to have available all the reference work which is covered by all these institutions. Many of the latter use our library regularly. We have here much literature which the other organizations do not carry. We are glad to have them use our facilities. Frequently we have need of their facilities. It would be better, however, if this cooperative effort were set up with more smoothly working mechanics than has been established up to now.

In addition to promoting education through the facilities of the library itself, the Academy has a function to perform in stimulating and directing education more directly either by conducting courses, giving lectures, panel discussions, forums (both professional and for the laity) or in cooperating with other institutions in educational activities. It is in this latter category where I feel we can make our greatest improvement. We must endeavor to keep in closer touch with the hospitals. The cooperative library plan can be developed here with considerable advantage. Also, we should keep in touch with the various educational programs having to do with post-graduate education as well as with stated hospital meetings, help prevent overlapping of conferences if possible and make available to the hospitals any particular educational advantages which we may have or may acquire. We also should develop closer association with special organizations such as the American Heart Association, American Cancer Society, American Tuberculosis Association, American Diabetes Association, etc. In addition, and in keeping with the original Certificate of Incorporation, the original Charter of the Academy, one of our functions is to take an active part in public health—not in its administration but in the educational sphere. We should, I think, make a more direct approach both to the State Department of Health and the Wilmington City Board of Health. We have a responsibility here which we have not fulfilled.

Lastly, we have the question of research. It certainly is not the function of the Academy of Medicine actually to engage in medical research. We have not and have no rea-

(Concluded on Page 126)

✚ Editorials ✚

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AMA Convention

The AMA Convention will be held in New York, June 1-5. So far as we have been able to ascertain, no Delaware doctor has yet received his membership card, which is used at the time one registers at the Convention. The AMA reports that membership dues for 1953 are now rolling in at a much faster rate than in 1952. The headquarters office is equipped to mail out about 10,000 cards a week, but since the dues are coming in at one time and in such a big volume there is quite a backlog already on hand. To make matters worse, there are five states that have not yet sent in any of their dues to the AMA, whereas certain other states, notably Colorado, Massachusetts, Ohio, Pennsylvania and Texas have already mailed in more than 80% of their membership dues. Even in little Delaware one County Society, as late as April 27, had not yet sent in any dues to our State Treasurer. These circumstances might present quite a problem when it comes to registering at the Convention. We know of two ways by which this handicap may be averted.

1. The doctor should send in *immediately* to the AMA the Advance Registration Blank, which has been printed in JAMA every couple of weeks from early in February. Should Chicago not be able to send back to him the part that he is to use in New York, we can fall back on the second remedy.

2. As our State Treasurer receives the dues from the County Treasurers he will mail to each physician a Temporary Receipt Card, a supply of which has been ordered from Chicago. It may take another ten days for these Temporary Receipt Cards to be received by our Treasurer, but as soon as he gets them he will mail them out to our members. At best the interval between the receipt of these cards and the Convention itself is quite short, so it is urgent for everyone to attend to these matters promptly.

Chicago has a complete roster of our members up to this date, which should eliminate the possibility of a Delaware doctor being refused registration. None-the-less this 1953 jam demonstrates the importance of paying dues promptly in January, of the County Treasurers remitting to the State Treasurer in February, so that he can remit to the AMA also in February. Even then the AMA would be pushed to the utmost to get out 140,000 Membership Cards in time for a June Convention.

Bad Publicity

The thousands of our citizens who listen to Joe Pyne's program, "It's Your Nickel" on WILM were treated, around March 20th, to some news about the medical profession that was definitely hurtful to us. A woman called in and told Mr. Pyne that she had received a bill from a local doctor for $20 for a broken appointment. She explained that she broke the appointment because her child was sick, and she asked Mr. Pyne what to do about it. He said to do nothing about it, and that no doctor would sue for a mere $20. Following this dialogue there were numerous calls expressing disgust at a profession that would resort to such tactics. One caller said he was not a lawyer but was a law student and that the doctor could not collect that bill. Another disgusted citizen said that he was not a physician but he knew the doctors had a Grievance Committee to consider just such complaints from the public. Several irate callers said such tactics, if persisted in, would bring about a demand for Socialized or State Medicine. And other comments equally uncomplimentary to the medical profession. Incidentally, the lady later engaged legal counsel, who was ready to go to bat for her.

About ten days later this woman called Mr. Pyne again and stated that she had received a letter from a collection agency to the effect that if this $20 bill was not paid within three days the matter would be taken to court. Again the telephones jangled with calls of criticism of our doctors pouring into the ears of Mr. Pyne, who repeats them on the air, phrase by phrase. Be it said to the credit of this gentleman he discounted most of the complaints and stated that his impression of the medical profession here was a distinctly favorable one, and that the doctor in point must be the rare exception.

This patient called Mr. Pyne for a third time about two weeks later and stated that she had consulted the chairman of the Grievance Committee of the Medical Society and that he had told her to forget the whole thing. Thus, apparently, ends the publicity in this particular instance, but upon the untold thousands of people who heard it a bad impression has been imposed, an impression that we all know is unjustified. Of course the episode was the rare exception. We mention this matter only because one-half the town already knows about it, and we would like to give the public the knowledge that such an episode will probably never occur again in Wilmington.

THE DELAWARE ACADEMY OF MEDICINE

(Concluded from Page 124)

son to expect facilities for doing this either in the form of laboratories or in necessary funds. We should, however, and in fact it is our responsibility, stimulate and encourage medical research in this area, knowing that such research properly conducted will add immeasurably to the caliber of medicine practiced in the community. We must be very careful, however, before approving any particular investigative effort that the individuals concerned and the project under consideration will pass critical authoritative examination. The function of the Academy of Medicine through its Research Committee is to make certain that any research matters brought before it for an opinion will receive competent inspection and examination.

If the Board of Directors and the Executive Committee will see to it that some individual or individuals will constantly direct and stimulate and encourage activity in these four main fields of function, the Delaware Academy of Medicine can go far in the foreseeable future toward fulfilling the purposes laid down in its charter. If this is done, and I believe it can be done, a great service will be rendered to both the professional and nonprofessional members of this fast growing community.

Our opportunity is great: it is ever so in the field of medicine. From a lecture by Benjamin Rush, delivered November 7, 1791, I quote: "We live, gentlemen, in a revolutionary age. Our science has caught the spirit of the times, and more improvements have been made in all its branches within the last twenty years, than had been made in a century before."

Reasonably complete control of tuberculosis is attainable only where nutritional and other hygienic standards are high. C.-E. A. Winslow, The Cost of Sickness and the Price of Health. WHO Monograph Series, No. 7, 1951.

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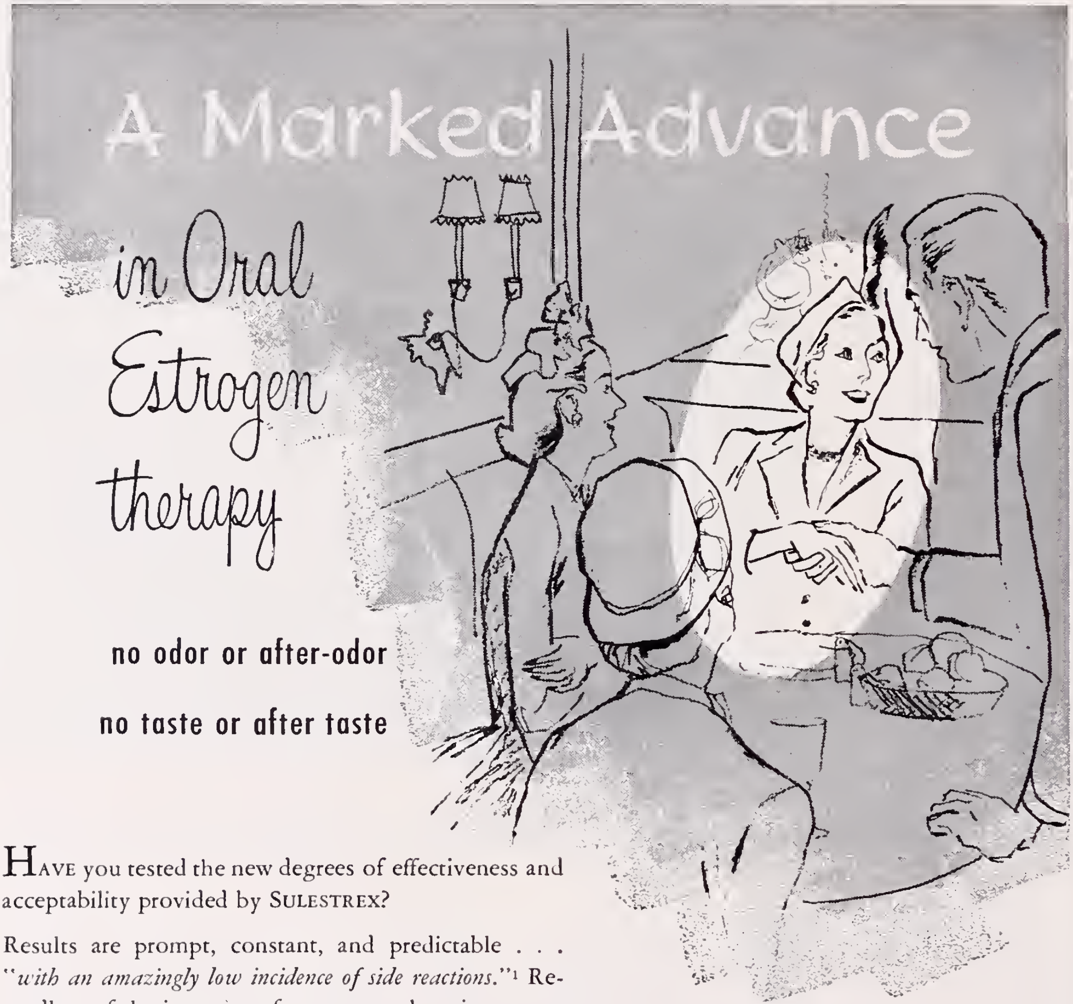

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1. Reich, W. J. et al. (1952), A Recent Advance in Estrogenic Therapy. II. Amer. J. Obst. & Gynec., 64:174, July.

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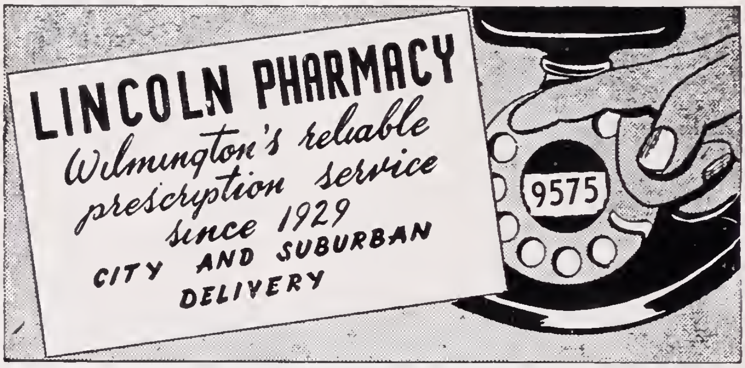

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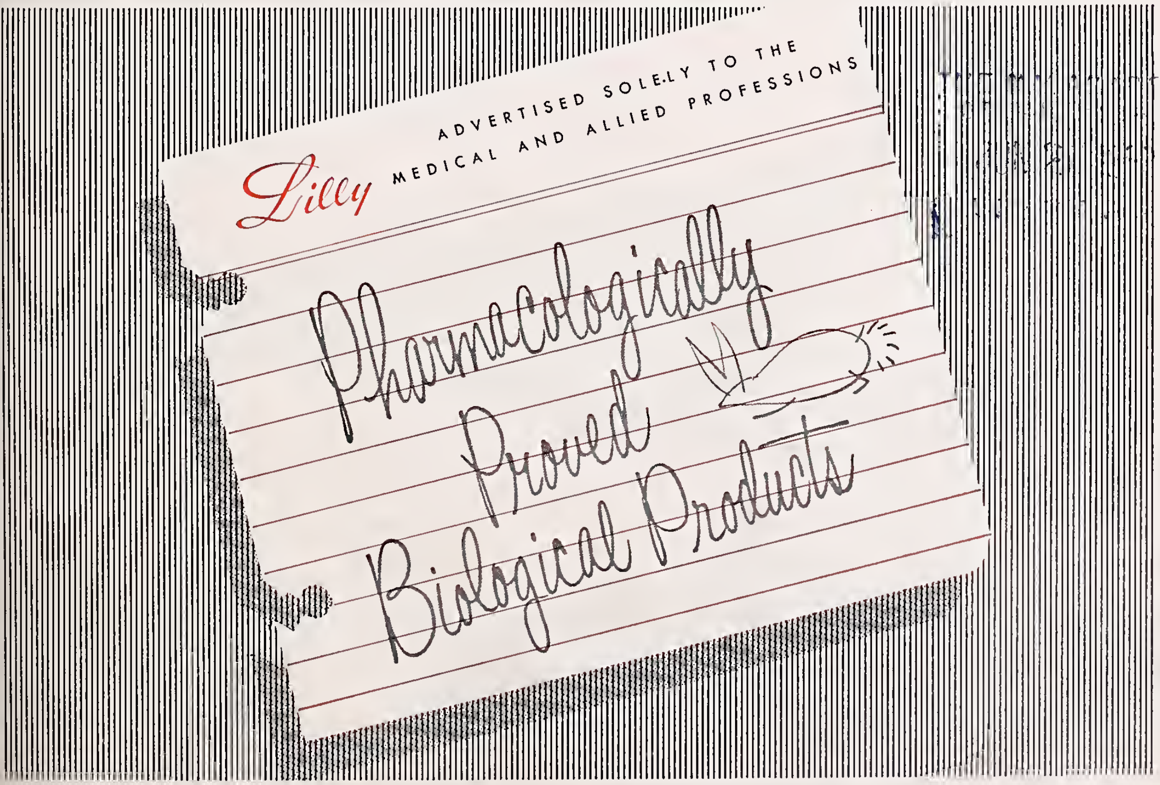
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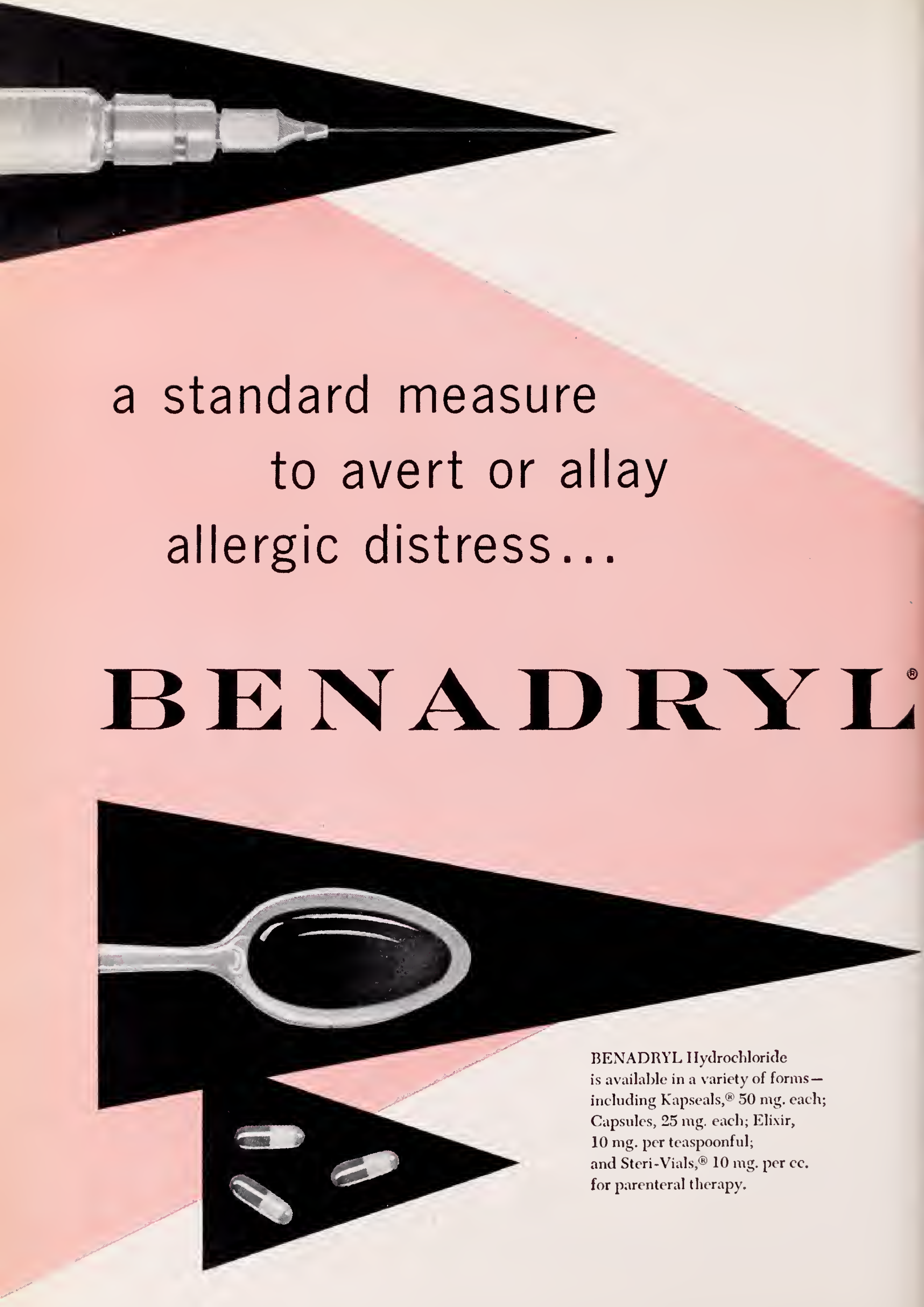

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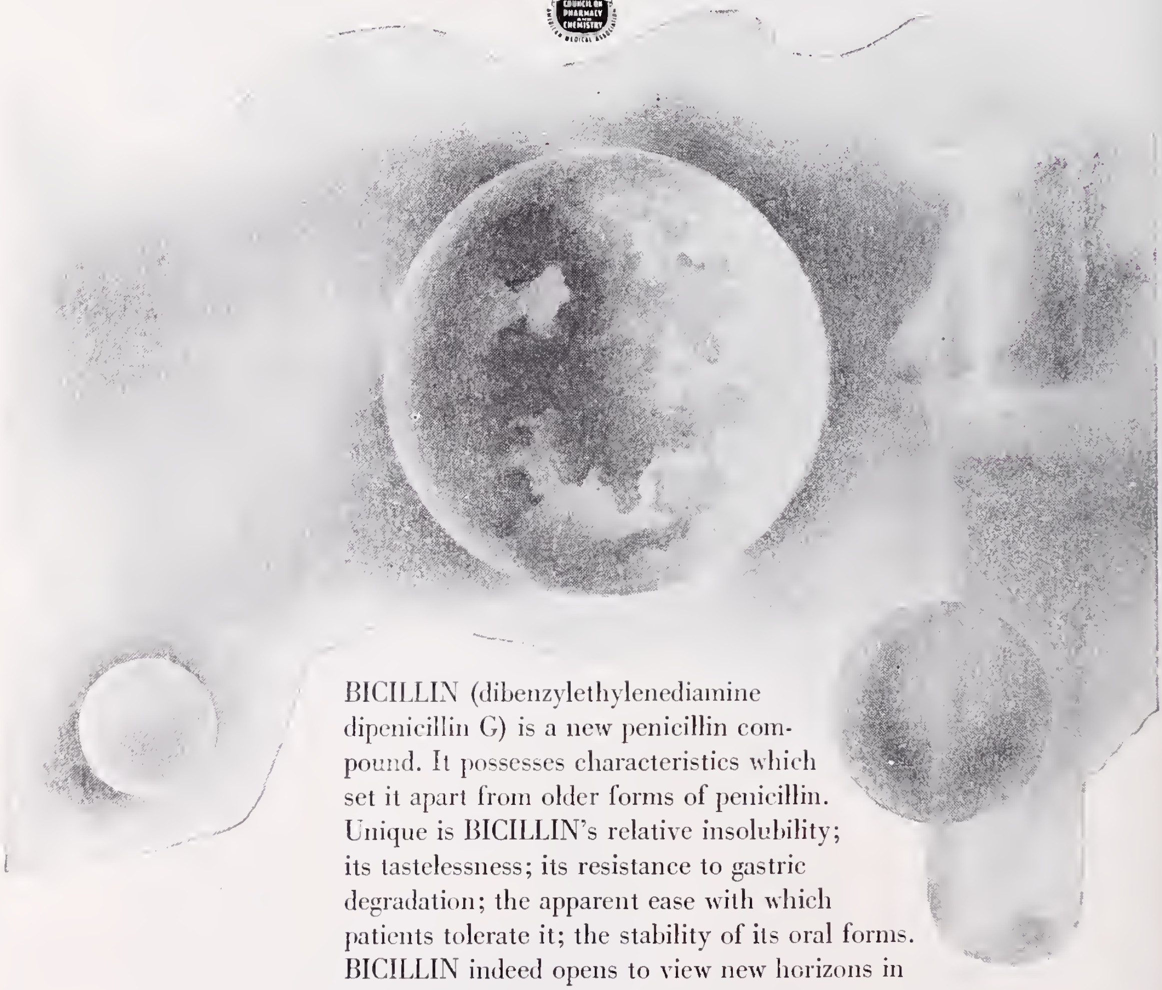

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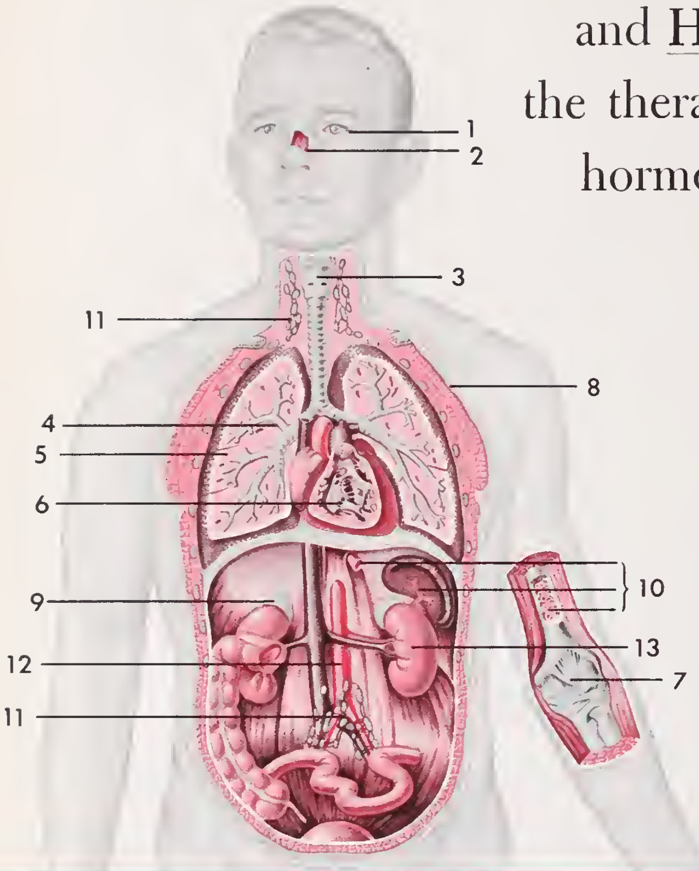

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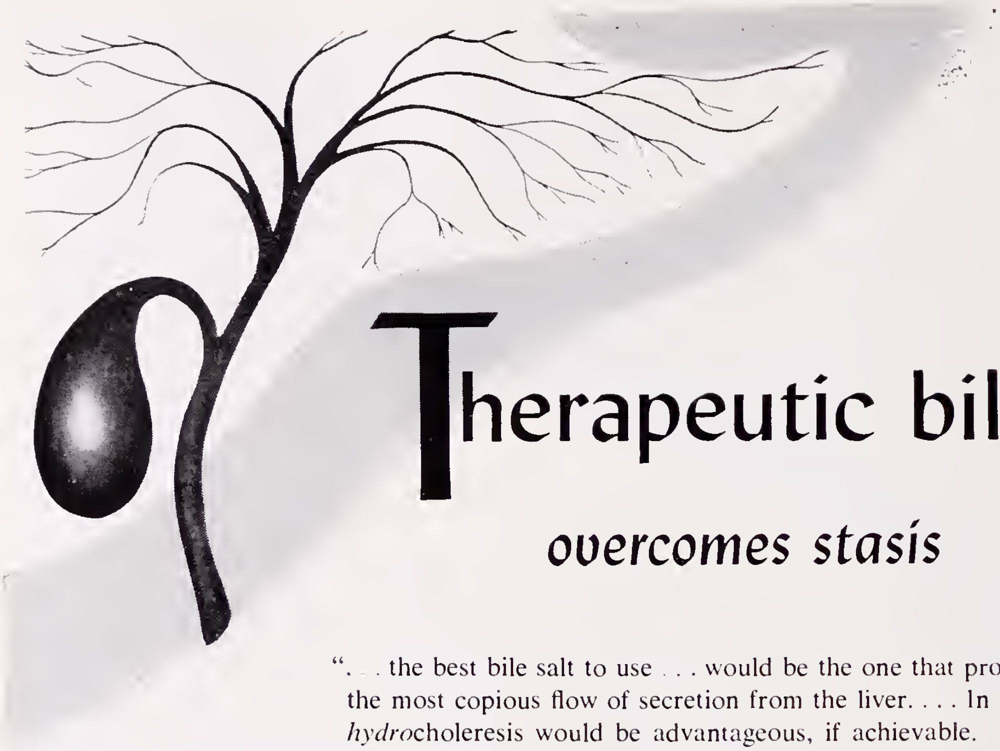

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*Beckman, H.: Pharmacology in Clinical Practice, Philadelphia, W. B. Saunders Company, 1952, p. 361.

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Deucher, F.: Schweiz. med. Wchnschr. *82*:1 (Jan. 5) 1952.

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Farley, W. J., Konieczny, L.: J. Pediat. *42*:177 (Feb.) 1953.

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Reiss, E., et al.: A. M. A. Arch. Surg. *64*:5 (Jan.) 1952.

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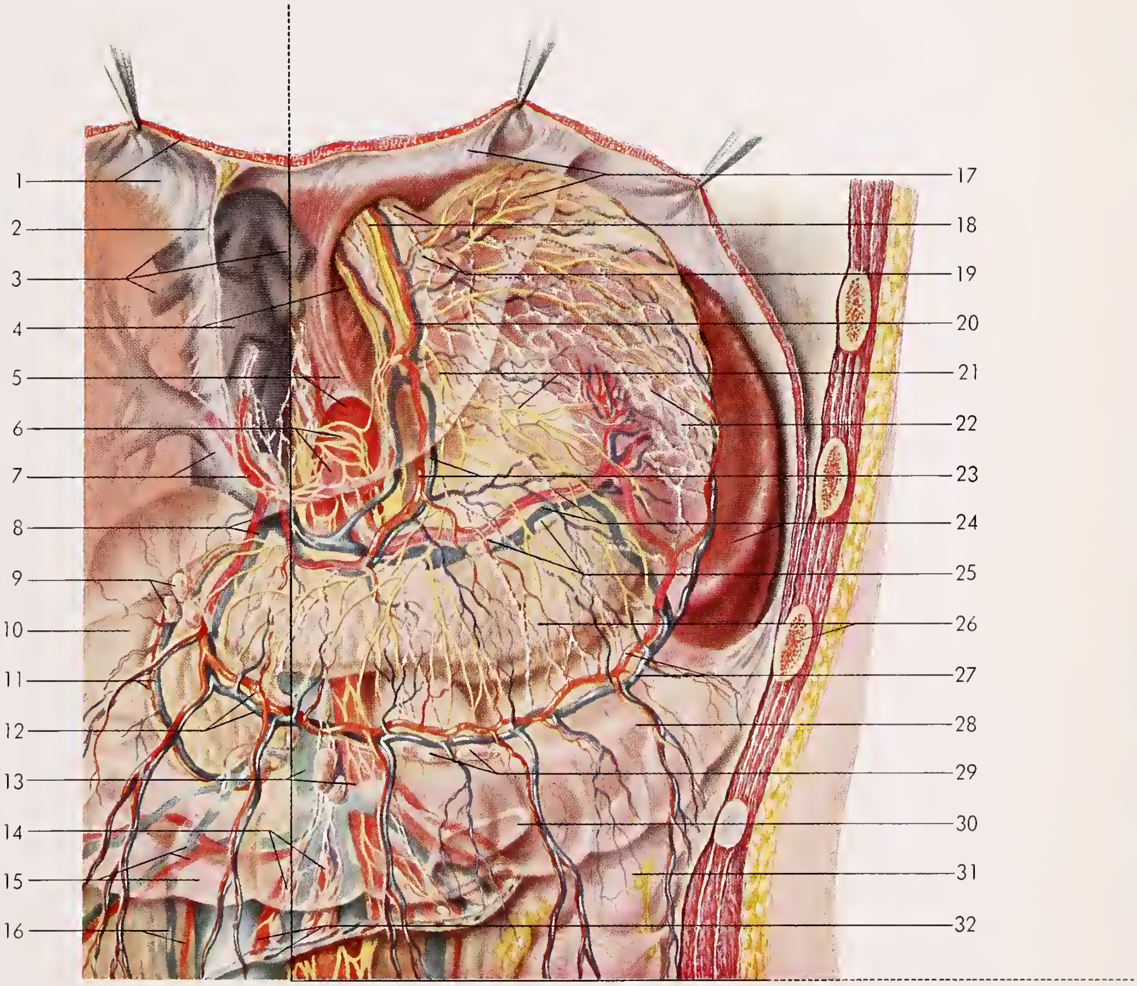

1 Diaphragm and coronary ligament
2 Falciform ligament
3 Hepatic veins
4 Inferior vena cava and right vagus nerve
5 Crus of diaphragm and abdominal aorta
6 Celiac artery and celiac plexus
7 Hepatic artery and portal vein
8 Gastroduodenal artery and vein
9 Subpyloric lymph nodes
10 Duodenum
11 Superior pancreaticoduodenal artery and vein
12 Right gastroepiploic artery and vein
13 Superior mesenteric artery and vein
14 Superior mesenteric lymph nodes
15 Transverse colon and right colic artery and vein
16 Spermatic artery and vein
17 Left triangular ligament and left lobe of liver
18 Esophagus and left vagus nerve
19 Paracardial lymph nodes
20 Esophageal branch of left gastric artery and vein
21 Gastric rami of vagus nerve
22 Splenic lymph nodes
23 Left gastric artery and coronary vein
24 Spleen and splenic artery and vein
25 Superior pancreatic lymph nodes
26 Pancreas and tenth rib
27 Left gastroepiploic artery and vein
28 Left kidney
29 Inferior gastric lymph nodes
30 Jejunum
31 Descending colon
32 Ileocolic artery and vein

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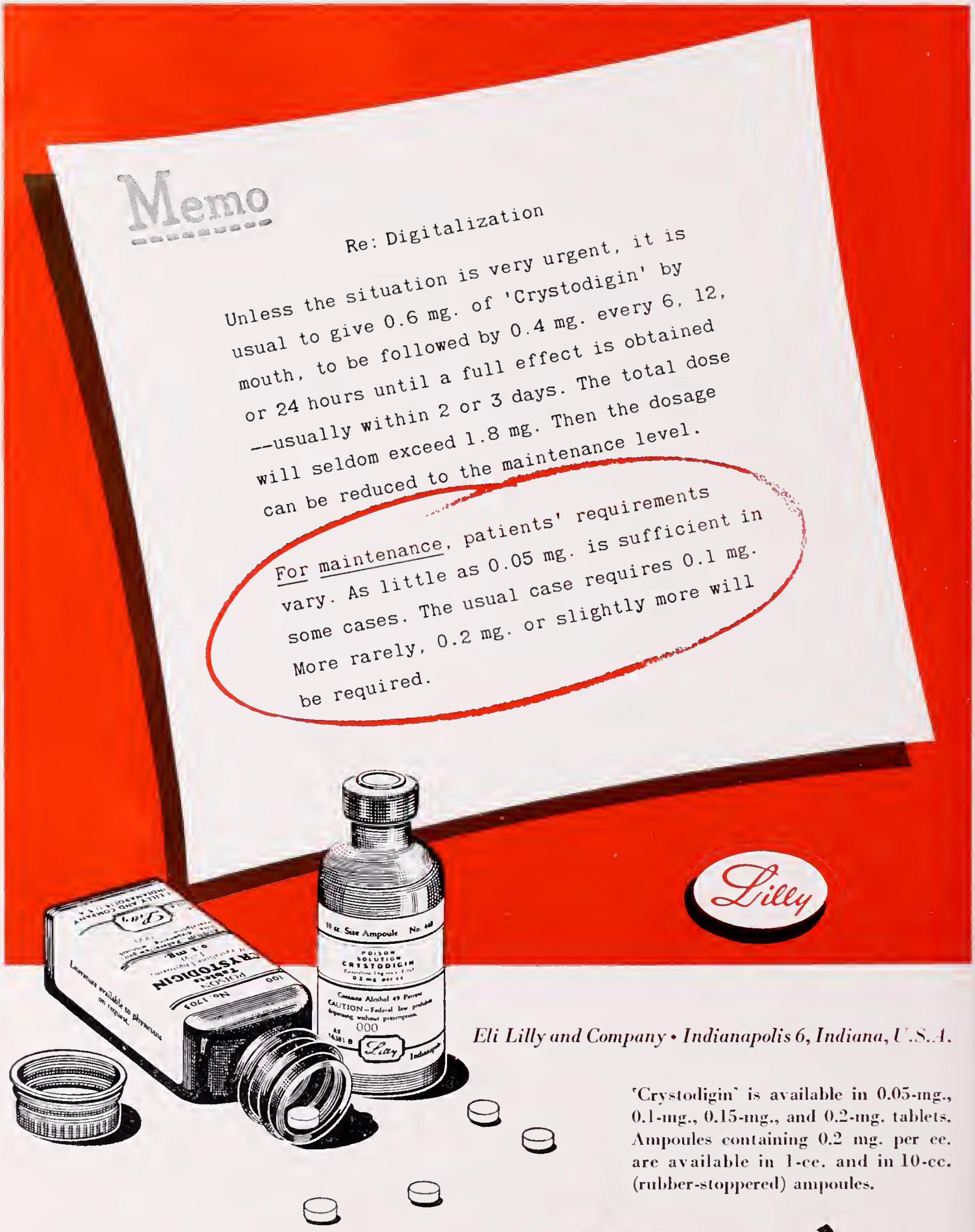
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DERMATOLOGY AND THE CHIROPODIST*

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Some idea of the universal prevalence, among Americans at least, of disorders of the feet may be gained from a visit to any five-and-ten cent store. It is amazing to behold on display the number and variety of preparations and appliances for the treatment and correction of corns, calluses, bunions and fallen arches, and for the treatment of "athlete's foot." Incidentally, it is also astounding, as every general practitioner, dermatologist and chiropodist well knows when in the morning he opens his fourth class mail, or glances through the advertising sections of his professional journals, to note the great number and variety of the literary blurbs, samples and advertisements dealing with the treatment — to say nothing of the "cure" — of athlete's foot.

It has been reliably estimated that disorders of the feet occur in eighty per cent of women and in at least sixty per cent of men. This is not surprising when one takes into consideration the fact that in no other place in the body is there such an interlacing of bones, muscles, tendons, ligaments, fascia, nerves, blood and lymphatic vessels as in the hands and feet; that the feet have about one-third of the movable joints in the body; and that the feet are supplied with a superabundance of actively functionating sweat glands whose product we seem to be perversely intent on keeping from evaporating by encasing and almost hermetically sealing our feet in leather shoes that have been treated, moulded and pasted together, as often as not, with sensitizing and irritating rubber antioxidants (such as monobenzyl ether of hydroquinone) and accelerators[1], resins, dyes, plastics, etc. [2-9] Of course, faulty muscular development and numerous other factors, be it remembered, may also be responsible, directly or indirectly, for disorders of the feet and legs.

Few practitioners of the science and art of healing are as familiar with the almost infinite number and variety, as well as the significance, of the signs and symptoms of diseases of the pedal extremities as is the chiropodist. In his four years of undergraduate didactic, laboratory and clinical training in a college of chiropody (entrance into which, incidentally, requires at least one and in some institutions two years of college credits), the student is first thoroughly grounded in such basic medical disciplines as anatomy, histology, physiology, bacteriology, pathology, chemistry, hygiene and public health, and materia medica. He then receives instruction in medicine, surgery, neurology, orthopedics, dermatology, roentgenology, physiotherapy and various other special subjects (such as footgear, foot orthopedics, military chiropody, etc.), with particular emphasis on the chiropodical application — diagnostically and therapeutically — of each of them. And certainly, once he is engaged in active practice, the chiropodist sees more patients suffering from one form or another of diseases of the feet than does any practitioner of medicine.

So far as origin is concerned, diseases of the feet — and this is especially true of dermatological diseases — may roughly be divided into three groups: first, those peculiarly local or regional in their nature, arising in or on and being confined solely to one or both feet; second, those that have their origin in the feet and give rise to symptoms not only in that part of the lower extremities but also elsewhere in the body; and, third, those that arise almost anywhere else in the body and subsequently also involve the feet. *Not infrequently, too, the primary symptomatic manifestation of a systemic disease may ap-*

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*Read before the Medical Society of Delaware, Rehoboth, September 9, 1952.

**Clinical Professor of Dermatology and Syphilology, Temple University.

pear in the form of some disorder of one or both feet. It may even be limited to the feet. This occasionally is true, too, of some otherwise widespread dermatoses, of which psoriasis may be cited as an example.

Like dentists, the chiropodist is frequently in the strategic position where he may be the first to see, suspect and detect the presence of disease falling within the broad domain of medicine or that of its various specialties other than chiropody. Frequently, too, on the basis of a reasonably thorough history, supplemented by careful local examination and aided, if need be, by various laboratory and, perhaps, roentgenological studies, he is able to make an accurate diagnosis of a systemic disease.

Under these circumstances, as Dr. John A. Kolmer[10], Professor of Medicine in the School of Medicine and School of Dentistry of Temple University, recently stated in an address on "Chiropody in Relation to Medicine," "Chiropodists will be in position to cooperate more efficiently with physicians in the detection of disease and the promotion of health, which cannot fail to win the appreciation and respect of the laity along with mutual advantage to both professions. Certainly this policy is proving successful in dental education." May I here add that it is also proving no less successful in chiropodical education.

No better example of the proven value of team work between medicine and chiropody can be cited than the fact that hospitals — certainly those with large clinics devoted to peripheral vascular and metabolic diseases, especially diabetes — have chiropodists officially associated with those clinics. It was not always so, however. I have in mind the midwestern chiropodist who, some ten years or so ago, proudly and justifiably boasted that the services he was able to render at one of the hospitals in his city were so much appreciated that he had been asked to and accepted an official appointment as chiropodist to a second large hospital in that community. And if it is not so today, I am certain it soon will be the rule that every hospital will have a chiropodist on its staff. Indeed, it has already come to pass, as was inevitable that it would, that the progressive and rapid increase in their number made necessary the formation of a special group known as the American Association of Hospital Chiropodists. And, may I call attention at this point to the fact that the Mayo Clinic of Rochester, Minnesota, deeply appreciative of the services its chiropodist, Dr. Paul L. Tarara, had for many years rendered to its Section on Orthopedic Surgery, expressed that appreciation by announcing at a dinner in his honor the formal appointment of Dr. Tarara as a voting member of the Clinic staff.

The first great step in America toward the recognition of chiropody as a special branch of the organized profession of medicine, coequal with dentistry, pharmacy and nursing, may be said to have occurred in 1939, when the Judicial Council of the American Medical Association ruled that the practice of chiropody is not a cult practice as some have believed, for cult practices have bases of treatment which are not supported by scientific or demonstrated knowledge and on which bases all diseases are treated. "Chiropody," the Council stated, "is rather a practice ancillary — a hand maiden — to medical practice in a limited field considered not important enough for a doctor of medicine to attend and therefore too often neglected. General opinion seems to be that chiropody fairly well satisfies a gap in medical care that the profession has failed to fill." The Council also ruled that teaching by members of the American Medical Association in recognized schools of chiropody is not unethical. Forward progress since then has been made in great strides — with seven-league boots, as it were — as is indicated, among other things, by the increasingly high standards of the various recognized schools of chiropody and the splendid character of the scientific programs presented at the meetings (annual or monthly as the case may be) of the National Association of Chiropodists and its various constituent regional, state, county and local organizations. Furthermore, the United States Navy has accorded chiropody due recognition by granting commissions to its practitioners, and it is confidently expected that the same recognition will soon be accorded by the United States Army.

Dermatologically, as I have intimated before, the feet may be afflicted with almost any disease to which the skin of the rest of the body is subject. It is also prone to diseases, especially affecting the toenails, to which most of the rest of the body is not subject. It is not my objective here to list in detail the various dermatoses which may afflict the feet. With few exceptions, the table of contents of a textbook on dermatology could well be transposed here for that purpose. I shall not do so. Let it suffice, if you please, for me to cite to you the case histories of a number of patients, of particular interest to chiropody, to dermatology and to medicine in general.

Case Reports

Case 1. Interdigital Secondary Syphilis Associated with Interdigital Tinea Pedis.

Miss E. R., colored, age 27, who had from time to time in the past been treated for athlete's foot, limped into the office of her chiropodist, Dr. Gerald V. Feldman, on October 25, 1951. She complained of severe pain and a profuse discharge involving the fourth web of her right foot, of about one week's duration. Examination revealed the presence at that site of a partially crust-covered, sharply-marginated, smooth-surfaced, deep-seated ulcer filled with a thin, sero-purulent exudate. Some edema, associated with tenderness, was present over the dorso-lateral aspect of the right foot. Some interdigital maceration and scaling also were present in most of the other interdigital webs of each foot. Almost the entire plantar surface of each foot was covered with thin, whitish-gray, loosely attached scales, for the most part obscuring an underlying discrete, erythemato-brownish, flat, papular eruption. A discrete, reddish-brown, papular eruption was present on each palm. A flat, papular lesion, of circinate configuration, about 1.0 cm. in diameter, was noted at the muco-cutaneous junction of the right nostril.

Realizing that he was dealing here with what was now probably much more than a case of interdigital tinea pedis, and suspecting the possibility of an associated secondary syphilis, Dr. Feldman referred the patient to my office. Examination of the exudate from the aforementioned ulcer with the darkfield microscope revealed the presence of what was virtually a pure culture of *Treponema pallida* (a score or more in each field). Examination of the patient, disrobed, revealed the presence of a faint, maculo-papular, discrete eruption on the trunk. A moist, gray, condyloma lata, measuring 1.0 cm. in diameter, was noted on the perineum.

Incidentally, it is worth noting here that Dr. Stephen D'Orta, President of the Philadelphia Chiropody Society, was present at my office at the time of this patient's visit. He witnessed the examination of the patient and the darkfield demonstration of the *Treponema pallida.*

The Kolmer-Wassermann reaction of the patient's blood, taken at the time of her first visit, was reported plus three. She received no treatment other than a series of intramuscular injections of penicillin, 600,000 units each, twice weekly, over a period of 12 weeks. Involution of the eruption and complete healing of the ulcer rapidly took place during the course of treatment.

Diagnosis. Secondary syphilis associated with a *Treponema pallida*-containing, deep-seated interdigital ulcer of the fourth web of the right foot and a painful secondary pyogenic infection and incipient cellulitis of the right foot, in a patient with chronic interdigital tinea pedis.

Comment. That the occurrence of infectious interdigital syphilitic lesions of the toes resembling tinea pedis is not too rare an occurrence is indicated by a report of ten such cases by Helen T. Dexter,[11] of the Department of Dermatology and Syphilology of the College of Medicine of the University of Cincinnati.

In two of the ten cases "the systemic diagnosis of syphilis was made on the basis of interdigital lesions which on examination proved to be darkfield positive; the diagnoses were further confirmed by high positive titers in the standard serologic tests. In the other eight cases generalized maculo-papular lesions and condylomata lata of the genital areas were present and responsible for the original diagnosis of secondary syphilis; the foot lesions were observed and darkfield examinations were performed to complete the work-up of the cases."

Dexter further states that "T. L. Chin[12] in China in 1932 reported three cases of dermatophytosis-like syphilitic lesions. In 1940 Thomas and Bluefarb[13] described six similar cases in New York, and L. Selmi[14] found one such case in Italy in 1941. Stokes[15] and his associates mention a patient with interdigital syphilitic condylomata in their textbook. Undoubtedly this small number of cases is not indicative of the incidence of such lesions but perhaps of the failure to recognize their syphilitic etiology."

CASE 2. Secondary Syphilis Involving Plantar Aspect of Both Feet.

Miss O. M., colored, 22 years old, called at the Dermatological Clinic of Temple University Hospital on September 10, 1951. She complained of an itching eruption on both feet, which had been treated by her family physician as athlete's foot for several weeks, with but little or no improvement. Examination revealed a discrete, large, copper-colored, papulo-squamous eruption, chiefly confined to the arch of each foot. The especially interesting feature of this case lies in the fact that the correct clinical diagnosis was made by a young chiropodist, Dr. Elier Russ, who had but three months previously graduated from the Temple University School of Chiropody. He was present in the Clinic at the time the patient was first examined. On being asked by the attending dermatologist what he thought was the clinical diagnosis in this case, Dr. Russ replied: "I believe it is secondary syphilis."

Careful examination of the patient, disrobed, failed to reveal any eruption on her skin other than an elevated, moist, grayish-white, smooth-surfaced plaque — a condyloma lata — about 1.5 cm. in diameter, on the right labia majora.

Treponema pallida were found on darkfield examination of the exudate on the surface of the condyloma. The plantar eruption and the condyloma rapidly disappeared after treatment with penicillin was instituted.

CASE 3. Plantar Sebaceous Cyst.

Mrs. N. V., white, age 39, was referred to my office on February 26, 1948, by her chiropodist, Dr. I. P. Forman, because of a deep seated subcutaneous tumor-like mass on the lateral aspect of the arch of the left foot. This growth was first noted by the patient some 8 months previously. Since then it had become progressively larger and quite painful. Examination revealed a deep-seated, firm, subcutaneous growth, measuring 1.5 cm. in diameter, firmly attached to the overlying hyperkeratotic skin but freely movable subcutaneously.

The tentative clinical diagnosis was subcutaneous fibroma. Surgical excision was advised but rejected by the patient.

On March 30, 1948, the patient returned. She had been using various local preparations. An erosive dermatitis had developed over the surface of the growth and there was a papulo-squamous dermatitis on the arch and sides of the foot due to the use of adhesive tape. On examining the surface of the mass with a probe, the point of the latter sank into the interior of the growth. On removal of the probe, some cheesy matter was easily expressed from the opening. It was now evident that we were dealing here with a sebaceous cyst. The latter was removed easily with a hemostatic forceps. Uneventful healing ensued.

COMMENT. The plantar aspects of the feet like the palms are not supplied with pilosebaceous structures. The occurrence of a sebaceous cyst on the sole is, therefore, an anomaly which is most unusual. A similar case was reported some years ago by a Philadelphia chiropodist, Dr. David LeBovith.[16]

CASE 4. Plantar Squamous Cell Carcinoma.

Mrs. S. S., white, 85 years old, weight 220 lbs. This patient was referred to my office on November 18, 1950, by her attending chiropodist, Dr. Raymond J. Mazer. Some six months previously she had noticed a small, wart-like growth about the middle of the arch of her left foot. She sought medical attention for the condition. A diagnosis was made of hyperkeratosis due to traumatic irritation. The patient refused to accept this diagnosis, especially since the use of the prescribed ointment failed to produce any improvement in the lesion. Several months later the growth began to ulcerate. On November 7, 1950, the patient consulted Dr. Mazer, who referred her to my office with a tentative clinical diagnosis of cancer of the skin.

Examination revealed an elevated, infiltrated ulcer the center of which contained a mass of granulation tissue. The entire growth, including the palpable subepidermal infiltrative mass beyond the ulcerative border, measured 2.0 cm. in diameter. A biopsy was performed the pathological report on which was: squamous cell cancer.

Radical excision was recommended which, however, the patient and her son refused to accept. Treatment with the X-rays was then instituted.

Comment. One of the lessons which this case teaches is the great value of the old dermatological axiom which states that *any non-healing, ulcerative lesion of the skin, of three or more weeks' duration, should be regarded as either cancerous or syphilitic* until proven otherwise.

Case 5. Subdigital Granuloma Pyogenicum.

Mrs. B. G., white, age 52, called at my office on March 23, 1950. She complained of a small, bright-reddish growth on the undersurface of the left big toe. Duration about three weeks. The growth had a tendency to bleed when traumatized.

Examination revealed a small, glistening, bright red growth, measuring 0.5 cm. in diameter, on the tip of the plantar surface of the middle toe of the left foot. The growth was excised and sent to the pathologist. His report thereon was: granuloma pyogenicum.

Case 6. Subdigital Spindle-cell Sarcoma.

Mr. J. A. L., white, age 56, was referred to my office on December 11, 1944, by his chiropodist, Dr. Sargent Hendler. The patient complained of a painless growth under the second toe of his left foot, of one month's duration. Examination revealed a sharply circumscribed, round, elevated, soft, bright-red, granulomatous-looking growth, measuring 1.0 cm. in diameter, located in the subdigital fold of the left second toe. The surface was covered with a thin, pinkish-white epiderm, which was dotted here and there with bleeding puncta. The growth was surgically excised and submitted to the pathologist with a clinical diagnosis of granuloma pyogenicum. The pathological report, however, was: spindle-cell sarcoma.

Comment. One of the lessons this case teaches is that clinical diagnoses of the nature of tumors are not always correct. The pathologist has the last word, and not infrequently it is at variance with the clinician's opinion. Another lesson which this case teaches is the great advisability, if not the imperative necessity, of having a pathological diagnosis made on every growth that is removed.

In the case of this patient, healing took place rapidly. It is now almost eight years since the growth was removed. There has been no recurrence.

Case 7. Fibrosarcoma of Left Big Toe.

Mr. J. A. L., white, age 57½ years, was referred to my office on April 29, 1946, by his chiropodist, Dr. Sargent Hendler. This is the same patient as Case No. 6. He was referred to me by Dr. Hendler because the latter, in giving the patient a routine chiropodical checkup the previous day, had noticed the presence of a circumscribed, slightly elevated, firm, scaly, purplish-red growth, about 0.8 cm. in diameter, on the plantar aspect of the left big toe, about 1.0 cm. below the distal border of the toenail. The patient did not know how long the growth was there. In fact, he had been unaware of its existence. The growth was excised surgically and sent to the pathologist whose report thereon was: fibrosarcoma. There has been no recurrence to date.

Comment. Clinically, this growth resembled an angioma. In view of the fact that the somewhat similar growth on the adjoining toe, a year and a half before, had proven to be a spindle-cell sarcoma, it was reasonable to raise a question of possible relationship between the two tumors. The consensus was that there was no relationship other than coincidence, and that the patient possessed, perhaps, a tendency to the development of sarcoma. At any rate, it is now about six years since the second growth was removed and the patient has to date developed no new growth whatever on his feet or elsewhere.

Again, this case teaches, among other things, the advisability of having a pathological diagnosis performed on every growth that is removed.

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THE ROLE OF THE CHIROPODIST IN DIABETES[*]

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The person with diabetes today is not receiving the same therapy as did the diabetic in the pre-insulin era, or the one during the plain insulin period, i.e., the interval prior to the discovery and use of the delayed or slow acting insulins—protamine zinc, globin insulin with zinc, or the N. P. H. Today, diabetics have the advantage of the most recent knowledge of nutrition, insulins and general care. These advantages have enabled the person with diabetes to live longer and partake more of the activities of a normal person.

In the pre-insulin era the person with diabetes lived according to his condition. If the patient was a child, his life was a matter of days; a severe adult, his life was short; in diabetic coma, he died; a mild diabetic, he lived upon a rigid but poor vitamin diet. As a result of the deficient diet the latter individual's resistance was below par and often caused the patient to live in constant fear of infection, which, when it occurred, aggravated his diabetes and helped to shorten his life.

With a few exceptions many of these patients with diabetes in the pre-insulin era became a burden to society. It was impossible even for the mild diabetics to seek positions for livelihood. Unfortunately, this condition still prevails for some diabetics in various parts of the world. This we must try to change.

Fortunately, today, the condition diabetes is apparently well controlled. The patient is able to live and enjoy life as any other person. Great accomplishments have been achieved by them in the advancement of science, politics and economics throughout the world.

But the most important question asked by the individual with diabetes is: "am I safe from the complications or associated peripheral arterio-vascular conditions of diabetes?"

The question can not be absolutely answered. We realize, however, that the person with diabetes can now extend his life span, even approaching that of a normal individual, a situation which has been made possible through insulins, diet, antibiotics and other medical advances. These have enabled the diabetic to eat a normal or adequately balanced diet, not a diabetic one, as in the pre-insulin era, restricted in all the essential vitamins.

But in spite of insulin and newer knowledge of nutrition, vascular complications, or associated disorders are increasing, with resultant invalidism and heightened mortality rate. Numerous advancements have been made, however, to reduce vascular incidence and mortality rate, and many more are in the experimental stage.

Some of these are: first, the advocating of a normal, adequate diet of a high protein, carbohydrate and low fat.

Second: the introduction of the slow acting insulins—protamine zinc, globin with zinc and N. P. H., as a result of which the patient has been more cooperative and the carbohydrate metabolism apparently better controlled.

Third: the improvement in the diagnosis and treatment of peripheral vascular disease.

Because peripheral arterio-vascular disease, or associated vascular disorders, have contributed much to increase invalidism, as well as the mortality rate, in spite of the newer advances, they are of much concern to all physicians.

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[*] Read before the Medical Society of Delaware, Rehoboth, September 9, 1952.

[**] Chief of Metabolic Services—Philadelphia General, St. Joseph's and St. Agnes' Hospitals.

The true etiology of peripheral arterial vascular disease in diabetes is unknown. Whatever relationship exists between control of the diabetes and incidence of peripheral arteriovascular disease is still a debatable issue. We are aware, however, that adequate control of diabetes does not mean simply the attaining normal blood sugar level. It means the attainment of an apparent normal carbohydrate metabolism for the patient who is upon a balanced or optimum diet, with or without the aid of insulin, as evidenced by the normal blood sugar level.

When the patient's diabetes is adequately controlled measures must be taken to help prevent disorders of the lower extremities. The earliest signs of arterial vascular disease are usually present in the feet. This area is the most neglected part of one's anatomy.

Little does one realize that peripheral arteriovascular disease in 12-15% more prevalent in diabetics than in non-diabetics.

Since the person with diabetes today is becoming more conscious of disease of the lower extremities, especially of the feet, he is more aware of the advice and care of the chiropodists. The trained chiropodists who detects circulatory disturbances in the lower extremities, or infection of the feet in his course of routine care, is in a vital position to help advise patients to seek the aid of his family physician.

When any slight abrasion or discoloration of the feet is observed the physicians advice is immediately sought. The patient is taught to follow certain precautionary rules as to general care of his feet or lower extremities. He must not wear tight garters or shoes, must avoid such strong antiseptics as iodine, as well as hot water bottles, and rusty razor blades. He should be instructed to cut toenails straight across, soak feet in a basin of warm soapy water, then rinse the feet thoroughly with water. In drying the feet, the patient is advised to use a soft towel and to sponge, not rub, between the toes. After the feet are dry, he should gently massage with lanolin or olive oil. Finally, the patient should be taught general foot exercise or the Buerger-Allen exercise to help improve circulation.[1]

Chiropodists today, must take their place among those doctors who will help discover the existence of diabetes, as well as help to prevent vascular disorders of the lower extremities in the diabetic.

In our own metabolic department, where we have over 800 registered diabetics coming to our clinic at regular monthly intervals, we have observed a noticeable reduction in the number of amputations, in spite of the increasing incidence of peripheral vascular disease, since the establishment of the chiropodist department twenty years ago. This I believe is a direct result of the fact that we subject patients to periodic examinations of their feet.

The value of the chiropodist department is evident in the various outstanding clinics throughout the country, in the New England Deaconess Hospital, Mayo Clinic, Mt. Sinai Hospital, New York Emergency Hospital, Georgetown University Hospital, Washington, D. C., Grave-New Haven Community Hospital, New Haven Connecticut, Cedars of Lebanon Hospital, Los Angeles, and in numerous other places.

Today no sacrifice is too great to help combat the increasing prevalence of peripheral vascular disease in diabetes. This can be accomplished by the coordination of various branches of medicine, of which the modern chiropodist is a definite part, as already evident in our department, as well as in other clinics throughout the country.

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REFERENCE

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Discussion

Of Dr. Friedman's and Dr. Sindoni's Papers.

Dr. I. Lewis Chipman, Jr. (Wilmington): I just wish to congratulate Dr. Friedman for coming all the way to Rehoboth and showing us these beautiful pictures on syphilis and malignancy of the feet.

I would like to relate that while I was sitting back there an instance came to my mind of when I was a boy, not so many miles from here. I worked in a country drug store in a town of about 1500 people, and I had to wait on this customer that came into the drug store. Her name was Mandy Andrews. Mandy used to come in and purchase sulphur salve, ammoniated mercury salve, corn pads and bunion pads, iodine, and so forth.

One day I asked her what she did with those things. She said she was a foot doctor. That was more than fifty years ago. I said to her: "Mandy, how did you become a foot doctor?"

"Well," she said, "to tell you the truth, my mother was a slave in Virginia, and it fell to her lot to treat the white folk's feet, to trim their corns and take care of their feet and trim their toe nails and bunions, and she passed the art along to me." So she had come into my community and set up in business and was known there as the "foot doctor." At that time she said her charges were 3 cents for a corn and 5 cents for a bunion, or two feet for 20 cents.

Now chiropody has come a long way since that day, because that takes us back 150 years ago, including her mother. Her mother was a slave and started in on that specialty. Today the large universities have recovered this foot doctoring from the charlatans and quacks and raised it up to the present standards where they must recognize and treat such diseases in their large clinics.

The only fault I have to find with the teachers of chiropody is that sometimes I think they don't teach the differential diagnoses seriously enough so that when these chiropodists go out they sometimes don't recognize soon enough the malignancies that may affect the feet. I am talking directly to Dr. Friedman now, that he might pass these things on sooner or later to the men in the different specialties. As you know, chiropody takes in biochemistry, chemistry, orthopedics, physiotherapy, surgery, and clinical medicine and metabolic medicine, as Dr. Friedman has just told us.

Chiropodists are here to stay. I think that with careful teaching they can be of considerable assistance to medicine.

Dr. Lawrence Katzenstein (Wilmington): Dr. Friedman, I want to congratulate you again on those beautiful pictures. I have seen dermatologic pictures from teaching in Baltimore, Philadelphia, New York and Boston, but have never seen any to compare with these.

I would like to ask you two questions about things that worry me as regards the feet. One concerns nevi, the small pigmented dark nevi, or moles, which we know are potentially malignant, which may become melanomas. There are figures that suggest the highest incidence of melanomas is on the feet. I never know what to do about those. On the whole, the average surgeon does not like to incise them for fear of getting a scar. It would be interesting to hear your point of view about this really practical problem. It is amazing, the incidence of these junction nevi on the feet. I have heard Clarence Livingood say he had found them on as many as 30% of the feet he has examined.

Also, in shoe-leather dermatitis, where you find a positive patch from the shoe, or a part of it; what do you do? I usually tell the patient to get a pair of shoes made by another manufacturer. Sometimes that works and sometimes it doesn't. Of course, it is pretty expensive going around, paying $15 or $18 for a pair of shoes, trying to find a manufacturer that doesn't use the type of solvent, and so on, that the other used. A recent article stated, I believe, that the benzol ester of hydroquinol accounts for 50 per cent of the cases of shoe-leather dermatitis. I would appreciate some remarks along that line. If that is borne out, it will be a real advance.

Dr. Lester A. Walsh (Wilmington): I am speaking not only as a member of the Chiropody Society of Delaware, but as a Past-President of the National Association of Chiropodists, and I voice the opinion and attitude of our entire profession.

Briefly to summarize the papers of Drs. Friedman and Sindoni, we have been told how the practice of chiropody fits into the picture of both dermatology and metabolic medicine. It, however, does more than that. It is an intimate component of the practice of medicine. For brevity's sake and to get to the point, I will ask and answer several questions that will bring aid in the understanding of chiropody in relation to medicine.

1. What is a chiropodist?
2. What are his educational requirements?
3. What is the legal and moral scope of chiropody—(a) medically; (b) neurologically; (c) with reference to x-rays, especially their use in pathomechanics; (d) in the peripheral vascular field; (e) in surgery (American College of Foot Surgeons' requirements).
4. Where does chiropody end and orthopedic surgery begin?

Under present conditions, chiropodists work hand in glove with the metabolic departments of hospitals. They can do more. They could be of help to the roentgenologists. They could assist in peripheral vascular clinics. They can be of help surgically as an adjunct to the orthopedic surgeon.

Chiropodists who are qualified in surgery are perhaps as familiar with phalangeal possibilities of toes as some orthopedists who do very little of this type of work. I refer to the surgical correction of heloma, or the common corn and of phalangeal spur formations.

Chiropody today is an integral part of the practice of medicine. We were educated and trained by doctors of medicine and chiropodists. We are classified as physicians by Blue Cross, narcotic regulations, and the Industrial Accident Board. This designation is used only for legal reasons in the collection of fees from insurance and other organizations who specify that treatment must be administered by a physician.

We have men in our profession who have had a background of as much as 8 or 10 years of university training. In fact we have men with that background in our own Delaware State Chiropody Society today.

In closing I want to take this opportunity to thank Drs. Friedman and Sindoni for their contributions on our behalf, and thank the Medical Society of Delaware for the privilege of participating in this program.

Dr. Edward M. Bohan (Wilmington): We owe Dr. Sindoni a debt of gratitude for bringing his twenty years of experience in diabetes mellitus to us today in his excellent talk on the role of the chiropodist in diabetes. In his talk was a stimulating question asked by many patients, and I would like to quote it: "Am I safe from the complications or associated peripheral-vascular conditions of diabetes?" Certainly this is an excellent question!

The diabetic under the physician's care is not treated merely as a diabetic alone, but as an individual possessing diabetes who is subject not only to the complications of this disease but also to the various diseases which affect other people.

Because arterial disease in diabetes is not too well controlled with insulin or by maintaining the blood sugar at an ideal level, certain extraordinary efforts must be made to protect the patient from the seriousness of the vascular complications which are prone to arise. If these complications do arise the effort expended may be a thousand fold; and the cure uncertain. Unfortunately, the latter event is all too common. Of twenty female patients in the diabetic ward of the Philadelphia General Hospital last week, over 50% had infections or gangrene of the extremities.

In order to solve the problem of vascular complications some important facts must be taken into consideration. We must think first of the prevention level, which may be augmented by community health education. In 1949 the American Medical Association made a recommendation that health education programs should be administered through suitable state and local health services and medical societies to inform the people of the available facilities and their own responsibility in health care.

The local Diabetic Association can be helpful in organizing the community for action by word of mouth, the written word, and motion pictures. Diabetic classes in various hospitals are an excellent medium of information.

Dr. Sindoni just mentioned that instructions be given to diabetic patients on care of the feet. I would even suggest that printed instructions should be given to all diabetic patients on cleanliness, avoidance of injury to the feet and infection, proper shoes to wear, the danger of using too hot or cold water, and strong antiseptics.

Next, we must reason at diagnostic level. Fasting blood sugars will miss approximately 10% of the diagnoses, and therefore should be supplanted by the postprandial urine or blood sugar. Dr. Sindoni has repeatedly urged the wider adoption of the two hour postprandial sugar test by the physician and chiropodist in their efforts to make the diagnosis.

Once the diagnosis has been established we must instruct the diabetic patient as to the nature of the disease and its complications. He must learn to think with the physician on a team basis, employing the services of the orthopedist, dentist, opthalmologist, and podiatrist in an orderly fashion, as an aid in his fight against the progression of the ailment.

Many diabetics, as well as other people, do not know the difference between a chiropodist and a chiropractor. Chiropody goes back to 1785, when it was first introduced in London, England. It now requires a six year course, including two years of basic sciences. It is recognized as a branch of medicine by the British Medical Association. The chiropody clinic is part of hospital routine. At Saint Francis Hospital in Wilmington it runs concurrently with the diabetic clinic and undoubtedly has resulted in a great decrease in amputations.

When treating the feet of any person, the chiropodist is, or should be, acquainted with the symptoms and signs of impaired circulation, as manifested by changes in temperature sensation, subjective or objective, also color change, especially on alteration of the position of the lower extremity. The presence of numbness, tingling in the legs and feet, burning of the soles of the feet or diabetic neuritis must be cardinal symptoms to the observing chiropodist or physician.

Uninstituted prevention will lead one or two diabetic patients out of ten to gangrene. A diabetic may have poor mentality, impaired vision, and feet which he can hardly feel, and become a difficult patient not because of his will but because of his arteriosclerosis. The surgeon may skillfully save a leg by judicious amputation of a toe or part of a foot, but the diabetic patient should never reach that stage.

Dr. H. A. Tarrant (Wilmington): It has been a real pleasure and a privilege to have a working association with Dr. Sindoni at a local metabolic clinic, with frequent visits to a large teaching Philadelphia hospital where the fruits of his conscientious and untiring efforts are a monument to his ability in his field of endeavor.

As stated, emphasis is constantly directed to proper extremity care in view of the incidence of peripheral vascular involvement in diabetes. It seems possible that neglect of the feet, dermatophytosis, and secondary infection in patients with compromised circulation and altered tissue metabolism are of great importance. It is the feeling that the frequency of gangrene is greater than should be experienced. The feet are the common sites affected. One rarely sees gangrene of the upper extremity, particularly with vascular complications of diabetes.

It is the hope and the experience in many metabolic clinics where the physicians and chiropodists act as a team with properly supervised foot care that infection, a common precursor of gangrenous processes, may be prevented or minimized. It has been the practice in many diabetic clinics to furnish all patients with manuals and to have them seen at regular intervals by the chiropodist.

It would be presumptuous indeed on my part to further discuss the paper of our guest speaker since he has already so aptly covered the necessary relationship between the medical and chiropody phases of this all important subject. In addition the first discussor has emphasized the important issues involved.

In view of the present conception that peripheral vascular disease is thought to be so commonly associated with the level of the blood sugar and the apparent control of the syndrome of diabetes, I should like to take this opportunity to allude to some extremely important work of Dr. Sindoni which will be published in the very near future. In a very large series of diabetic complications subjected to statistical analysis, Dr. Sindoni's coming paper will point up some very new information on the occurrence of peripheral vascular disease in the so-called controlled and the so-called non-controlled diabetic.

In this coming publication, which will undoubtedly change the present knowledge, Dr. Sindoni will present indisputable data which will support not only his present concepts of all complications of diabetes but which may well alter our entire concepts of diabetes as a disease. I wonder if, in closing, Dr. Sindoni would be kind enough to mention a small portion of his unpublished data since this is so intimately related to our present ideas on the peripheral vascular complications of diabetes.

Dr. Friedman: I fully agree with Dr. Chipman concerning the importance of a knowledge by chiropodists of differential diagnosis. May I say here that one of the things which is particularly stressed at Temple University School of Chiropody—and I feel certain the same holds true in every recognized similar school throughout the country—is the matter of differential diagnosis.

Chiropody students are taught to diagnose and to treat whatever conditions of the feet belong in their special field of medicine. However, when confronted by problems—be they surgical, orthopedic, neurological, medical or otherwise in character—which are recognized by them as being beyond their individual diagnostic or therapeutic competence to solve, it has been the practice of chiropodists, as it is of physicians in general, to do that which is in the best interests of their patients. In other words, they render unto Caesar only that which is Caesar's.

Dr. Katzenstein's question concerning the prevention of shoe-leather dermatitis is not easy of solution because the dermatitis provoked by shoes may be due to one or more of a number of irritants, some of which may be primary and others sensitizing. Thus, for example, in addition to that provoked by leather, dermatitis may be the result of the action of resins, dyes, plastics, fillings, lining, rubber adhesives, etc. Incidentally, may I call your attention to an article which appeared only several weeks ago (August 9, 1952) in the Journal of the American Medical Association, by I. H. Blank and O. G. Miller, entitled "A Study of Rubber Adhesives in Shoes As a Cause of Dermatitis of the Feet."

In order to determine which factors are involved in any given case of shoe dermatitis, a careful history is important and the performance of patch tests is usually necessary. Once those factors are determined, recurrence may be prevented merely by never again wearing the particular brand of shoe containing those factors. This might entail a series of trial-and-error purchases. Of course, one could ask a patient, before wearing them, to bring his or her new pair of shoes to the office, from which pieces may be cut out for prior patch-testing purposes. This perhaps might ruin one or more perfectly good pairs of shoes in the process of determining what would or would not be safe to wear; obviously, a rather expensive procedure.

In answer to the question raised by Dr. Katzenstein concerning what to do about junction nevi on the feet, I would say that junction nevi are not in themselves malignant; they are only potentially malignant; they may never become malignant. In their asymptomatic, and apparently unchanged and non-malignant state, I advise their excision usually only when the patient questions me what to do about them. On the other hand, if during routine examination I find that a junction nevus on the foot has evidently undergone a change of size, shape, appearance, etc., due to trauma or inflammation or other causes, I don't wait for the patient to ask me what to do about it; I urge surgical excision as soon as possible.

Dr. Sindoni: Before I answer Dr. Tarrant's question I would like to say a few words about the Chiropody Department at the Philadelphia General Hospital. At present we have under our supervision several hundred patients with diabetes who come at regular intervals for treatment. Since peripheral vascular disease is so frequently associated with diabetes, it has become our duty to use all measures at our disposal to help prevent the associated vascular diseases, as ulcer or gangrene of the feet. The role of the chiropodist in this respect is paramount. It is his duty in the treatment of the patient's feet and examination of the lower extremities to report to the physician in charge open lesions, as well as signs and symptoms of circulatory disturbances. This procedure or coordination of the physician and chiropodist's knowledge has helped reduce the incidence of gangrene, as well as enabled the patient to become more conscious of the symptoms or signs of disorders of the feet.

Today, the chiropodist is becoming an indispensable factor in helping the patient with diabetes recognize the seriousness of adequate foot care.

Dr. Tarrant has asked about our recent survey of the relationship of hyperglycemia to premature vascular disease in diabetes which will soon be published in one of our medical journals. I hope to have sufficient reprints of our findings based upon many years survey to enable you carefully to read the article, so you may arrive at a just conclusion on this controversial problem. Time does not permit me to give you the conclusion without describing the details of the survey.

SOME UNORTHODOX VIEWS ON ATHEROSCLEROSIS*

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Introduction. A review without critical comments is like a meal without seasoning. We don't all like the same types of seasoning or the same amount. A critical review invariably antagonizes those whose views are criticized. To review but some theories and to omit the less popular concepts means to present an incomplete picture. To review all bibliography, one has to write a book. These are some of the difficulties confronting one who has to write about atherosclerosis.

It is for such reasons that I chose to present my own ideas on atherosclerosis. These views are but partly based on original observations and experiments. They are, naturally, influenced by reading.

Definition. My problem starts with the search for an acceptable definition of atherosclerosis. Experimentalists and clinicians disagree, and so do chemists, physiologists, and anatomists. Even members of the same specialized group do not see eye to eye. Those who used to claim that atherosclerosis is a normal phenomenon of old age or of ageing are not heard from anymore. Thus, we might agree that *atherosclerosis is a disease process.* Since the condition has been demonstrated in young adults and children, it can not be called a disease of old age, even so it is more frequent and more severe in older persons. That, I feel, is due to the fact that *atherosclerosis is a cumulative disease.*

Arteriosclerosis is a disease of the vascular media, while atherosclerosis is a disease of the intima-subintima of arteries and heart valves. But that's not valid solely for atherosclerosis as it could apply to endarteriitis and valvular endocarditis. The diseases differ in many respects: Inflammation is commonly confined to a limited sector, while atherosclerosis is a systemic and disseminated disease, even so it might manifest itself clinically and anatomically in but a single sector of the vascular tree. Atherosclerosis can persist for decades in a latent form without clinical signs and symptoms, a state best spoken of as *atherogenesis.* It progresses in the course of life, both in degree and extent, as an episodic disease. Such degree of reduction of the arterial lumen as found in atherosclerosis is rather typical for this disease. The atherosclerotic aneurysm differs markedly from the mycotic one, in size and also in outcome. Thus, we might, half-heartedly, define *atherosclerosis* as *an arteriopathy seated predominantly in the inner layers of the vessels leading to* partial or complete *restriction of the lumen,* sometimes *complicated by thrombotic occlusion, or leading to desintegration of the arterial wall,* sometimes followed by rupture.

Such definition stresses the main clinical manifestations of atherosclerosis, thrombotic occlusion and dissecting aneurysm. If we accept the definition of atherosclerosis we still have to define atherogenesis which precedes active disease. Here, one has to go into description of structural alterations which take place in the vascular wall. No matter what one thinks about the role of cholesterol in atherogenesis, all will agree that atheroma is principally characterized by the presence of cholesterol. One may be allowed to define atherogenesis as structural alterations anteceding, concurrent, or following cholesterol deposit in the intima-subintima. Thus, the specific character of atherogenesis and atherosclerosis seems established.

Etiology. Various theories have been advanced concerning the appearance of cholesterol within the vessel wall. The failure to demonstrate vasa vasorum in the inner layers of arteries silenced those who thought that cholesterol is being transported via the vasa. Proof that radioactive cholesterol from food appears in the vessels before it gets to the liver is a valid argument against the theory that hepatic endothelium cells carry esterified cholesterol to the arteries. The theory that cholesterol is formed within the vessels is not acceptable; the amount locally synthetized is very small, at best. This, too, has been proved by labeling acetates from which the body manufactures endogenous cholesterol. I believe that cholesterol enters the vessel wall from the blood stream through plasmapheresis.

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The next question placed before us and discussed over and over again is that of whether cholesterol can pass an intact endothelium or whether the innermost initimal layer is damaged before cholesterol enters the vessel wall. There is some possibility that there are stomata between intimal endothelium cells which allow passage of cholesterol. Final decision on this is still outstanding. My own observations on human vessels, namely of children and youngsters, and on arteries of experimental animals point toward damage of intimal endothelium as being primary. I believe that this damage which consists of hydropic swelling of endothelium cells has been previously overlooked, for once because we paid little attention to visceral vessels, and secondly, because we used to study advanced and grossly visible lesions and failed to study sectors of vessels which grossly seemed normal. My observations on animals were confirmed with many species by various scientists using many different experimental approaches. It is my opinion that hydropic swelling of intimal endothelium can be observed regularly in human beings of all age groups when exposed to shock and in animals in whom we produced shock (by histamine injection, for example) or stress (by intravascular injection of hydrophobic colloids, for example). The swollen cells have a thinned cell membrane which is fragile and apt to rupture and which is highly permeable to plasma colloids. Blood plasma seeps through the damaged endothelium and causes first edema and hyaline-mucoid changes in the subintimal ground substance. Through accumulation of water-soluble mucopolysaccharides there is increased metachromasia of the ground substance. Edema and presence of plasma constituents cause thickening of the vessel wall. Pseudocysts are formed by separation .of fibrils through exudate. The hydropic swelling seems reversible and this accounts for its absence and for apparently normal appearance of the endothelium in later stages of atherogenesis. Progressively, there is fibrosis and thickening of the intima. The alterations of the ground substance also undergo evolution. Apparently, cholesterol is the principal plasma constituent left in the tissues after resorption of liquid and soluble plasma constituents.

At this point, I have to turn to discussion of cholesterol. At least eighty per cent of all cholesterol in the plasma is combined with beta-globulin and alpha$_2$-globulin into lipoprotein complexes. These large molecules are present in the blood of all persons. Their amount increases with age. I do not think that mere presence of lipoprotein molecules explains the origin of atherosclerosis, though their number is greater in patients with active disease than in apparently healthy persons of comparable age. I do think, however, that these large molecular complexes become atherogenic under conditions of shock or stress, that is when plasmatic colloidity is disturbed, when there are abrupt pressure changes, and when the arterial endothelium becomes permeable for large molecules. Serum albumin is the best stabilizer of hydrophobic colloids such as cholesterol. Hypoalbuminemia is one of the main features of shock. Changes in osmotic pressure are well known. Increased permeability of capillaries has long been accepted as one of the characteristics of shock. I suggest that there is also increased permeability of arterioles and of arteries of various calibre. I believe that each episode of plasmatic dyscolloidity, each incidence of shock or stress can act as first impulse for atherogenesis, if all prerequisites are present. Atherogenesis of varying degree and extent as seen in the various age groups would then mirror repeated episodes of plasmatic dyscolloidity, each resulting in a new crop of atheromatous plaques.

Upon precipitation and deposit in the subintima, lipoproteins are rapidly broken down and cholesterol is freed from the complex. It can be assumed, although proof is still outstanding, that tissue heparin participates in the breakdown process. Judging from my own observations, cholesterol is present first in free form, extracellularly, and subsequently appears as ester within lipophages. Some investigators disagree with me and claim that cholesterol appears a priori in esterified form. The tedious discussion as to the origin of lipophages seems near its end: Macrophages which are normally present in the subintima apparently transform rapidly into phagocytes to take up the lipid. Cholesterol acts as local irritant.

Judging from animal experiments and suggested by observations of patients, early leasions are reversible. Removal of cholesterol from the vessels has been claimed but never conclusively proved. Known lipolytic and lipotropic agents act upon neutral fat only. Initial deposits of cholesterol seem to attract more and more cholesterol causing local growth of deposit and atheroma. This can lead to the progress of atherogenesis, to constriction of lumen and thrombotic occlusion. The tissue above the deposit might rupture into the lumen and the ulcerous atheroma will invite formation of mural thrombi. The process might extend toward and into the middle layer of the vessel, disrupting the elastica, splitting the media, causing intramural hemorrhage which in turn is often followed by organization of hematoma. Repetition of such process leads to dissection and eventually to external rupture of the vessel. Combination of obliterating and aneurysmatic changes in the same vessel can occur. Throughout either process, calcification will eventually take place. This may result in calcareous ulcers or in atherocalcinosis (to be distinguished from mediacalcinosis of arteriosclerosis). Atherocalcinosis occurs often on the heart valves.

When we discuss the evolution of atherogenesis and atherosclerosis through physicochemical disturbances of plasma colloids and histochemical and morphologic alterations of arterial tissues, we must not forget the changes which take place with aging. Chemical aging of blood plasma is characterized by a gradual increase in cholesterol, in betaglobulin, in lipoproteins of the Sf 10-20 order, and in calcium, and a decrease in albumin and enzymes. Physiologic aging of the matrix, especially of the ground substance, plays a predisposing role. With aging, there is increased tissue acidity, increase in water-insoluble mucopolysaccharides (which seem to attract lipids) of the groundsubstance, and increase in calcium of the musculature. The existence of an enzymatic system which functions in the synthesis as well as in the breakdown of cholesterol must be assumed although proof of such enzyme is still outstanding.

Moreover, the etiology of atherogenesis might not be uniform. In a certain number of cases, such as in valvular atherosclerosis, inflammation certainly plays a predisposing role. Thrombosis probably initiates atherogenesis in some persons, namely in the pulmonary arteries. The role of increased blood pressure in atherogenesis might be doubtful, but its role in localization of lesions can not be disputed. The predilection of certain sectors of the vascular system can be partly explained by structural differences, partly by varying vascularization, by the elasticity of certain sectors, and functional requirements upon a certain segment, but most of all by pressure differences in bends and forks of the vascular bed. The organ predilection which varies from person to person can not be explained to complete satisfaction. There is ample clinical and experimental evidence that estrogen protects coronary arteries but does not influence atherogenesis and atherosclerosis in other location. Close study of muscular arteries has never been made. Possibly, estrogen influences the surrounding muscle rather than the artery within the muscle.

Certainly, coronary disease is in the foreground of clinical interest because of its dramatic toll among middle-aged and apparently healthy men. However, the number of patients admitted to institutions because of psychosis due to atherosclerosis exceeds the number of persons affected with coronary disease. Socio-economically, cerebral atherosclerosis is most important of all forms of arterial disease. Death due to cerebral hemorrhage, nephrosclerosis with or without hypertension, hemorrhagic pancreatitis, gangrene of an extremity, all of which are frequently due to atherosclerosis or obliterative atherosclerosis, is as common as death due to myocardial infarction. Patients incapacitated with these disease manifestations and with others, for example with intermittent claudication or with trophic ulcers, are numerous. Atherosclerosis is truly not only a problem of mortality or morbidity statistics but a serious socio-economic problem as well. Naturally, our interest has to shift from the problem of etiology to that of diagnosis and next to prevention and treatment.

Diagnosis. The diagnosis of the various manifestations of atherosclerosis, for example of cerebral hemorrhage, myocardial infarction, or intemittent claudication, is not too difficult. The clinical signs and symptoms are often typical. Examination of eye grounds, determination of circulation time and measurements of skin temperature in response to various drugs, flicker-photometry, and the various modifications of sphygmomanometry greatly facilitate diagnosis. This applies to the many physical aids, such as angiography, radiology, oscillometry, electro-, ballisto-, vecto-, kymo-, phono-, and radio-electrocardiography, etc.

The diagnosis of atherogenesis is less frequently made and also less frequently sought. While it is more difficult than the diagnosis of atherosclerosis it is really more important. Many of the procedures just enumerated are helpful diagnostic tools where atherogenesis is in an advanced state and accompanied by tortuosity of vessels, differences in the diameter of the lumen, or calcification of arteries. In earlier stages of atherogenesis most of the physical aids are of but limited value. Many attempts were made to find a laboratory diagnostic test. One of the main reasons for failure along this line lies in our habits to divide probants into "normals" without active disease and "abnormals" who just experienced myocardial infarction or had had myocardial infarction some time ago. Thus, many writers of essays disregard not only patients with atherosclerosis other than of coronary arteries but also all persons with atherogenesis prior to onset of clinical manifestations.

Because of the undisputed role of cholesterol in atherogenesis most laboratory tests revolve around the assay of blood cholesterol. Tendency to atherogenesis is greater in persons with hypercholesteremia than in persons with normal hemocholesterols. This is true for persons with idiopathic familial hypercholesteremia and also for those in whom hypercholesteremia is incidental to a disease, such as diabetes or lipid nephrosis. However, persons with normal blood cholesterols can and do have atherosclerosis, and many persons with extensive atherogenesis or active disease have blood cholesterols which lie within the normal range up to 200 mg. per 100 ml. (for total hemocholesterol). It must be noted that patients with coronary atherosclerosis have, by and large, higher blood cholesterols than those in whom atherosclerosis affects vessels of other organs, for example of the brain. It further must be pointed out that shortly after myocardial infarction and other vascular incidents, blood cholesterol first drops below the antecedent level, and later, gradually rises above the pre-thrombotic level. The true level might not be attained until four weeks after infarction. Finally, different methods of assay render different results. Therefore, statistics have no value unless all the factors enumerated have been taken into consideration. As many clinical and technical details should be recorded as possible to facilitate comparison of results of various scientists.

In atherosclerosis, free and ester cholesterol levels run, as a rule, parallel. In the majority of patients, there is good correlation between the level of cholesterols, phospholipids, fatty acids, total lipids, chylomicron counts, and even the amount of lipoprotein molecules of the Sf 10-20 range. One gets as much information from determination of total blood cholesterol as from fractionation of all lipids. I do not share the opinion that in man the proportion between lipid phosphorus and cholesterol is significant, that a relatively low phospholipid level and high cholesterol level is prognostically bad and, conversely, a relatively high blood phospholipid level is prognostically good. This might be valid for certain animal species but in most patients the two blood levels deviate in the same direction and at about the same rate. In many patients with the active disease, one finds either both levels normal or finds a "favorable" ratio, while in some apparently healthy persons, the ratio might be altered. One has to bear in mind that any index based on the relation of two variable components is subject to multiple changes and is thus artificial. Such index can change in the same direction with the change of either component, or it can remain stable although both components are changed. One can vary the index by placing the cholesterol into the numerator and the phospholipid into the denominator, or reverse the sequence. Further on, one can proportion total, free, or esterified cholesterol against lecithin, or total phospholipids. Finally, values can be expressed either in mg. per 100 ml. or mEq. per liter. Cholesterols are fairly stable over a long span of time, while phospholipids fluctuate considerably in health and disease. Various tolerance tests have failed because they do not start from a basal level (such as we have in glucose tolerance tests). Cholesterol saturation tests and cholesterol lysis are worthless because of the negligible solubility of cholesterol added to blood plasma or serum.

With advancing age, there is tendency toward hypercholesteremia, increase in chylomicron count, increase and protraction of chylomicron curves after test meals, and toward an increased amount of molecules of the Sf 10-20 order. In as much as atherogenesis is a disease cumulating with age, one can expect similar chemico-physical deviations in atherosclerosis as encountered in the aged. The increases found in these patients so often exceed the levels expected because of their age that the blood findings are held by many observers diagnostic for atherogenesis and atherosclerosis. In the end, the fallacy of all blood chemical findings lies in the fact that results of tests are valid for large series of patients but not necessarily for the individual. For example, the majority of patients with coronary atherogenesis has blood cholesterol levels exceeding the average, but this or that person with angina pectoris might have a normal hemocholesterol. Blood chemical and physical findings right after a vascular accident resemble closely the changes which occur in shock or severe stress.

I want to point out that there is a tendency to overlook the role of proteins in atherogenesis. Hypoalbuminemia, be it absolute or relative, is, in my opinion, an important factor in atherogenesis because it facilitates precipitation of hydrophobic colloids. Hypoalbuminemia and hyperglobulinemia parallel the other blood chemical changes encountered in old age and they are present in atherogenesis and atherosclerosis with at least the same frequency as hypercholesteremia or increase in Sf 10-20 molecules. The study of the protein spectrum in patients with atherogenesis has more prognostic value than the blood lipogram. To follow therapeutic attempts directed toward correction of blood chemical disturbances, it would be helpful to perform not only repeated blood cholesterol studies but at the same time to partition the serum proteins to trace shifts in protein fractions. The newest methods of parallel fractionation of lipids and proteins by paper-electrophoresis offer the best outlook but it will take some time before sufficient data will be gathered for valid analysis.

Prevention. Therapy of clinical manifestations of atherosclerosis is largely symptomatic. Our efforts must be geared to prevention of atherosclerosis, that is to the treatment of atherogenesis, or, better, to prevention of atherogenesis. Theoretically, estrogen administration could prevent the extension of coronary disease. For other forms of atherogenesis and atherosclerosis, estrogen therapy can not even be considered theoretically. Regardless of what etiologic concept one or the other physician subscribes to, one can accept as a working hypothesis the thought that the problem of atherosclerosis would be minimized, or at least greatly diminished, if one could prevent vascular deposit of cholesterol.

To decrease the blood cholesterol level, several methods are available. One can eliminate all cholesterol and all other lipids from the diet, and at the same time reduce the caloric intake. In patients on a strict rice diet or kept on protein-hydrolysates hemocholesterols will decrease as will the amount of lipoproteins of the Sf 10-20 class. Recently, I reported successful prevention of cholesterol resorption in rabbits and in human beings through oral administration of sitosterol. Prevention of cholesterol resorption by sitosterol and with it prevention of hypercholesteremia and atherogenesis in cholesterol-fed rabbits has already been confirmed for chickens. A report on this preceded my own publication. Confirmation of my findings in man is fragmentary although a number of scientists are currently following this problem. Combination of sitosterol intake and partial dietary restriction might form a new approach.

Prevention of formation of liproprotein complexes might be considered. Possibly, binding of globulin fractions by thyroid hormone (to form thyreoglobulin) might prevent linkage of these globulins with lipids. Certainly, well controlled thyroid therapy is indicated for many patients with atherogenesis or atherosclerosis. Breakdown of molecules of high order into smaller ones can be attained with heparin or heparin activating factor. This can be studied with the differential ultracentrifuge and, crudely, by serum clearing tests and possibly by paperchromatographic methods. Breakdown of Sf 10-20 molecules has not yet been achieved.

Stabilization of liproprotein molecules and cholesterol is another therapeutic approach. According to some authors, this can be accomplished by increasing the amount of stabilizing phospholipids. Lipotropic medication is frequently administered on the basis of this reasoning. Such medication is indicated for other reasons, especially to influence the equilibrium of serum proteins. Removal of neutral fat from liver cells will enable these cells to resume normal function, including protein production and regulation. Lowering of blood cholesterol and increase of phospholipids through such medication is irregular and not dramatic. Decrease of cholesterol is mainly caused through enhanced cholesterol elimination by the bile, again because of improved liver function. A high protein diet is geared to adjustment of the protein level. Injection of albumin will be reserved for emergencies such as exist in shock, where hypoalbuminemia plays an important role. Prevention of shock and alarm reaction is, if my concept is correct, the best protection of blood vessels.

Certainly, until such time when we have a specific diagnostic test and a specific drug for atherogenesis we have to use all clinical, laboratory and physical diagnostic criteria and also all weapons of our therapeutic armament.

Conclusions. My own observations and thoughts can be summarized easily. I think that damage to blood vessels as manifested by hydropic swelling of intimal endothelium cells is initiated by the physico-chemical disturbances which take place in shock. I think that the derangement of plasma proteins, especially hypoalbuminemia, plays an important role in precipitation of lipoprotein molecules. I think that hyaline-mucoid changes in the ground-substance of the subintima precede atheroma formation and that cholesterol is deposited in the vessel wall secondarily. I believe that the possibility and probability of cholesterol deposit increases with hypercholesteremia and increased amount of lipoproteins. And I also believe that the presence of cholesterol within the vessel wall is responsible for many manifestations of atherosclerosis.

For laboratory diagnosis and prognosis of atherogenesis, I propose simultaneous fractionation of lipids and proteins of the blood serum. For prevention and treatment, I recommend dietary restriction in caloric intake, in cholesterol and other lipids, and dietary intake of sitosterol. Depending upon results of exhaustive clinical, physical and laboratory examinations, adjustment of serum proteins through protein-rich diet and by medication with lipotropics, and/or thyroid medication is indicated. Surely, shock and stress should be avoided wherever and whenever possible.

In reading over this manuscript I am rather taken by the fact that, without planning it, I have devoted one-half of this review-essay to laboratory diagnosis and to preventive measures. In previous articles on atherosclerosis, a brief paragraph on treatment used to append a lengthy discussion of etiology and morphology of the disease. This in itself indicates to me the progress made in the study of atherosclerosis and in my own attitude toward atherogenesis as a disease which is not only preventable but also adament to treatment.

A.M.A. HOUSE OF DELEGATES JUNE 1-5, 1953

The House of Delegates of the American Medical Association, in session at the Waldorf-Astoria Hotel during the 102nd Annual Meeting of the A.M.A. in New York City, took important policy sessions on veterans' medical care, medical ethics, osteopathy, intern training and a wide variety of subjects ranging from medical education to public relations.

The House also named Dr. Walter B. Martin of Norfolk, Virginia, as president-elect of the American Medical Association for the coming year. Dr. Martin will become president at the June, 1954 meeting in San Francisco, succeeding Dr. Edward J. McCormick of Toledo, Ohio, who took office at a special inaugural session of the House of Delegates in the Hotel Commodore during the New York meeting.

The New York meeting was the largest ever held in the history of the American Medical Association, with the final figures on total attendance expected to reach or surpass 40,000, including nearly 18,000 physicians.

Giving unanimous approval to a recommendation from its Reference Committee on Insurance and Medical Service, submitted as a substitute for eight different resolutions concerning the treatment of non-service-connected disabilities by the Veterans Administration, the House adopted the policy that such treatment should be discontinued except in cases involving tuberculosis or psychiatric or neurological disorders.

In taking this action, the House reaffirmed and adopted the following recommendation originally presented at the Denver Meeting last December by the Special Committee on Federal Medical Services:

"Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories:

"(a) Veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated, and

"(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the expenses of necessary hospitalization.

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs."

The reference committee report adopted by the House expressed complete accord with the present program of hospital and medical care for veterans with service-connected disabilities, and also included this statement:

"It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever-increasing cost of such a program is a proper burden to impose on the taxpayers of the country. A consideration of this problem must of course be predicated upon a concern for the health of the entire population and not just a particular segment."

Eleven resolutions dealing with publicity regarding unethical conduct of physicians were brought before the House as a result of recent newspaper and magazine articles reporting statements attributed to an official spokesman of an allied medical organization. The House adopted a committee report which recommended no action on the eleven resolutions but which reaffirmed the supremacy of the A.M.A. code of ethics and urged that the Judicial Council study suggested revisions concerning methods of billing.

"The Principles of Medical Ethics as formulated, interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession," the reference committee report said. "Any statement relating to ethical matters by other organizations within the general profession of medicine advances views of only a particular group and is without official sanction of the entire profession as represented by the American Medical Association."

Condemning generalized statements regarding the ethics of physicians, the report went on to say:

"Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated. This highlights the fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy.

"The reference committee believes that the members of the House of Delegates have demonstrated their devotion over the years to the principles of American democracy. This devotion includes the right of free speech. With this, the Committee agrees unqualifiedly.

"Broad generalizations, ill-advised and poorly prepared statements that often fail to convey the intended meaning are most unfortunate and are to be deplored. Destructive critical comments serve no useful purpose. Your committee has the utmost confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee."

The report also urged that the American Medical Association continue to inform its members and the public of its stand on matters pertaining to abuses and evils in the practice of medicine.

Most controversial issue brought before the House at the New York meeting proved to be the question of immediate or deferred action on the report of the Committee for the Study of Relations Between Osteopathy and Medicine. The House, after two hours of vigorous, spirited debate, adopted the majority report of the Reference Committee on Miscellaneous Business, thereby postponing action until the June, 1954 meeting and allowing further study by the delegates and the state associations.

The recommendations of the Committee for the Study of Relations Between Osteopathy and Medicine were as follows:

"1. That the House of Delegates declare that so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of 'cultist' healing.

"2. That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in the undergraduate and postgraduate education of doctors of osteopathy.

"3. That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility.

"4. That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body."

A minority report of the reference committee urged approval and adoption of those recommendations at the New York meeting. The majority report, which ultimately won out, included the following recommendations by the Board of Trustees:

"Because of the length of the report and the controversial nature of the subject, the Board feels that the House should have adequate time for its study and that the state associations should have opportunity to express their opinions.

"Therefore, it is recommended that the Committee be continued but that action on the report be deferred until the June, 1954, session. It is suggested that at that time the House be prepared to answer the following questions:

"1. Should modern osteopathy be classified as 'cultist' healing?

"2. Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?

"3. Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?"

Five resolutions came before the House with regard to the Essentials of an Approved Internship, which were adopted at the December, 1952, meeting. The Reference Committee on Medical Education and Hospitals recommended a substitute resolution which was adopted by the House after considerable discussion. The action abolishes the rule whereby approval may be withdrawn from an internship program which for two consecutive years fails to obtain at least two-thirds of its slated complement of interns. The resolution also calls for further study of the Essentials by a committee appointed by the Speaker of the House, at least half of whom are doctors in private practice not connected with medical schools or affiliated hospitals.

Among the many other actions taken, the House reaffirmed its endorsement of the principles embodied in Senate Joint Resolution No. 1 concerning international treaties or agreements which interfere with domestic laws or rights, and it approved a resolution deploring a derogatory article about the American Medical Association which appeared recently in the Home Life Magazine. The latter resolution was referred to the Board of Trustees for implementation.

Highlights of the opening day session of the House were addresses by Dr. Louis H. Bauer, who delivered his term-end report as retiring president; Dr. Edward J. McCormick, who spoke on that day as president-elect, and Mrs. Oveta Culp Hobby, United States Secretary of Health, Education and Welfare, and selection of the winner of the 1953 Distinguished Service Award.

Dr. Bauer, referring to charges of unethical practices among some doctors, declared that all members of the medical profession "should not be tarred with the same stick."

Dr. McCormick outlined a nine-point program for further improvement in the nation's medical care and expressed the hope that "their further development will solve many of medicine's problems and eliminate much of the criticism to which we are subjected."

Mrs. Hobby told the delegates that the present administration in Washington is looking with confidence to the nation's physicians for leadership in meeting the challenge of modern medical care problems.

The 1953 Distinguished Service Award was voted to Dr. Alfred Blalock of Baltimore for his outstanding work in vascular surgery and his part in the development of the so-called "blue baby" operation. Dr. Blalock, chief surgeon at Johns Hopkins Hospital and professor of surgery at Johns Hopkins University School of Medicine, received the award during ceremonies preceding the presidential inauguration Thursday night, June 2.

In addition to the selection of Dr. Martin as president-elect, the House also elected Dr. Carl H. Cellenthien of Valmora, New Mexico, to the office of vice president. He succeeds Dr. Leo F. Schiff of Plattsburg, New York.

Re-elected to office were:

Dr. George F. Lull, Chicago, secretary and general manager; Dr. J. J. Moore, Chicago, treasurer; Dr. James R. Reuling, Bayside, New York, speaker of the House of Delegates; Dr. E. Vincent Askey, Los Angeles, vice speaker of the House; Dr. Edwin S. Hamilton Kankakee, Illinois, and Dr. Cunnar Cundersen, LaCrosse, Wisconsin, as member of the Board of Trustees.

The House elected Dr. Julian P. Price of Florence, South Carolina, to fill Dr. Martin's unexpired term on the Board of Trustees.

Editorials

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Vol. 25 June, 1953 No. 6

Symposium on Bone and Joint Diseases

Widespread bone and joint diseases such as osteomyelitis and rheumatoid arthritis were the subject of a most successful medical symposium here on April 18 at the Alfred I. duPont Institute, Nemours Foundation, for over 300 doctors and their guests from this region.

The one-day postgraduate symposium was sponsored by the Delaware Academy of General Practice, in collaboration with Lederle Laboratories Division, American Cyanamid Company, of New York. Lederle is one of the world's largest pharmaceutical production and medical research concerns.

Family physicians from Delaware, the District of Columbia, Maryland, New Jersey and Pennsylvania attended. Nationally recognized experts discussed the latest methods of diagnosis and treatment of bone and joint diseases. The doctors and their wives were guests of Lederle at luncheon in the Foundation, and at dinner in the Brandywine Country Club.

Registrations for the sessions were so heavy the conference had to be moved to the Institute from its originally scheduled location at the Delaware Academy of Medicine Auditorium.

The meeting opened with a talk on basic bone and joint sciences by Dr. Charles Ragan, Associate Professor of Medicine at Columbia University and noted writer on arthritis and connective tissues. Following this, Dr. Isidore W. Ginsburg, Associate Professor of Medicine at Temple University, talked and presented a color film on rheumatoid arthritis.

After a brief recess Dr. John Staige Davis, Jr., chief of the arthritis clinic at St. Luke's Hospital, New York City, gave a paper on gout. He declared that gout is far more widespread than even physicians realize, as it is often wrongly diagnosed. The morning session closed with a talk by Dr. Richard H. Follis, Jr. on nutritional and metabolic diseases of bone. Dr. Follis is Associate Professor of Pathology at Johns Hopkins University Medical School. Speakers of the morning were introduced by Dr. Jesse Selinkoff, of Wilmington, President of the Delaware Academy of General Practice.

Dr. George J. Boines of Wilmington presided over a lively round-table discussion at the luncheon.

The afternoon session, with Dr. Arthur J. Heather of Wilmington as moderator, included the following talks:

"Orthopedic Aspects of Osteo-Arthritis" by Dr. Frederick L. Liebolt, Associate Professor of Orthopedic Surgery at Cornell University, and attending surgeon in charge of orthopedics at New York Hospital.

"Osteomyelitis" by Dr. Paul Hugenberger, Instructor in Orthopedic Surgery at Harvard University.

"Tuberculosis of Bones and Joints" by Dr. L. Ramsay Straub, Instructor in Surgery at Cornell University.

"Neoplasm of Bone" by Dr. Charles F. Geschickter, Chief Consultant Pathologist at the U. S. Naval Medical Center and Professor of Pathology at Georgetown University.

"What Health Progress Means to Me" by Frank G. Dickinson, Ph.D., Economist and Statistician of the American Medical Association.

Gov. J. Caleb Boggs was a guest at the dinner at the Brandywine Country Club. Dr. Harold A. Tarrant of Wilmington presided. The doctors and their wives concluded the evening with dancing at the Club.

This symposium was a part of the postgraduate Medical Education program of the Delaware Academy of General Practice, and those of its members who attended received a few hours of A. A. G. P. credit.

MISCELLANEOUS

Borden In Delaware

A total of $609,789 was spent by the Borden Company in 1952 for milk and other farm products, payrolls and taxes in the state of Delaware, according to an expenditure breakdown reported by the Company's Prescription Products Division. This is an increase of $49,474 over 1951.

Altogether, the Company spent $508,172,763 in the United States. This embraces activities in 47 of the 48 states, plus the District of Columbia, according to the Division which manufacturers and distributes a well-known line of infant feeding formula products. The Company has 111 stockholders and 109 employees in Delaware.

Delaware Doctor Honored

Recipient of the 1953 Squibb Institute for Medical Research Award of the Endocrine Society is Dr. David Marine, of Rehoboth Beach, Delaware, it was announced at the annual dinner of the Endocrine Society held recently at the Hotel Statler in New York City.

The award, consisting of a certificate and $2,500 in cash, is given annually for meritorious work in the field of endocrinology. In commenting on the award to Dr. Marine, Dr. Geoffrey Rake, Medical Director of E. R. Squibb & Sons, and Director of the Squibb Institute for Medical Research, cited Dr. Marine's pioneering work in the physiology and chemistry of the thyroid gland.

Dr. Marine's interest in thyroid activity began in 1905, shortly after his graduation from Johns Hopkins University. He was one of the first to demonstrate the correlation between endemic goiter and iodine deficiency in the diet. His experiments with iodine as a prophylactic agent made the control of endemic goiter possible throughout the world.

Dr. Marine began his work at Western Reserve University in Cleveland, resigning in 1920 to become Director of the Laboratory Division of Montefiore Hospital in New York City. He remained at Montefiore until his retirement in 1945.

BOOK REVIEWS

A DOCTOR'S SOLILOQUY. By Joseph Hayyim Krimsky. Pp. 116, Cloth. Price, $2.75. New York: Philosophical Library, 1953.

The author discusses life in general and marvels at the remarkable structure of the human body. He elaborates on the influence of religion in the emotional phase of life. The possibility of parental, moral, and regligious characteristics being inherited by the offspring as a result of environmental conditioning of genes is discussed.

Such philosophical truths as "the wheel of life revolves around the axis of love" and "the home is the keystone of the arch of ethical conduct" are typical of the author's reflections and meditations on man, nature, and God.

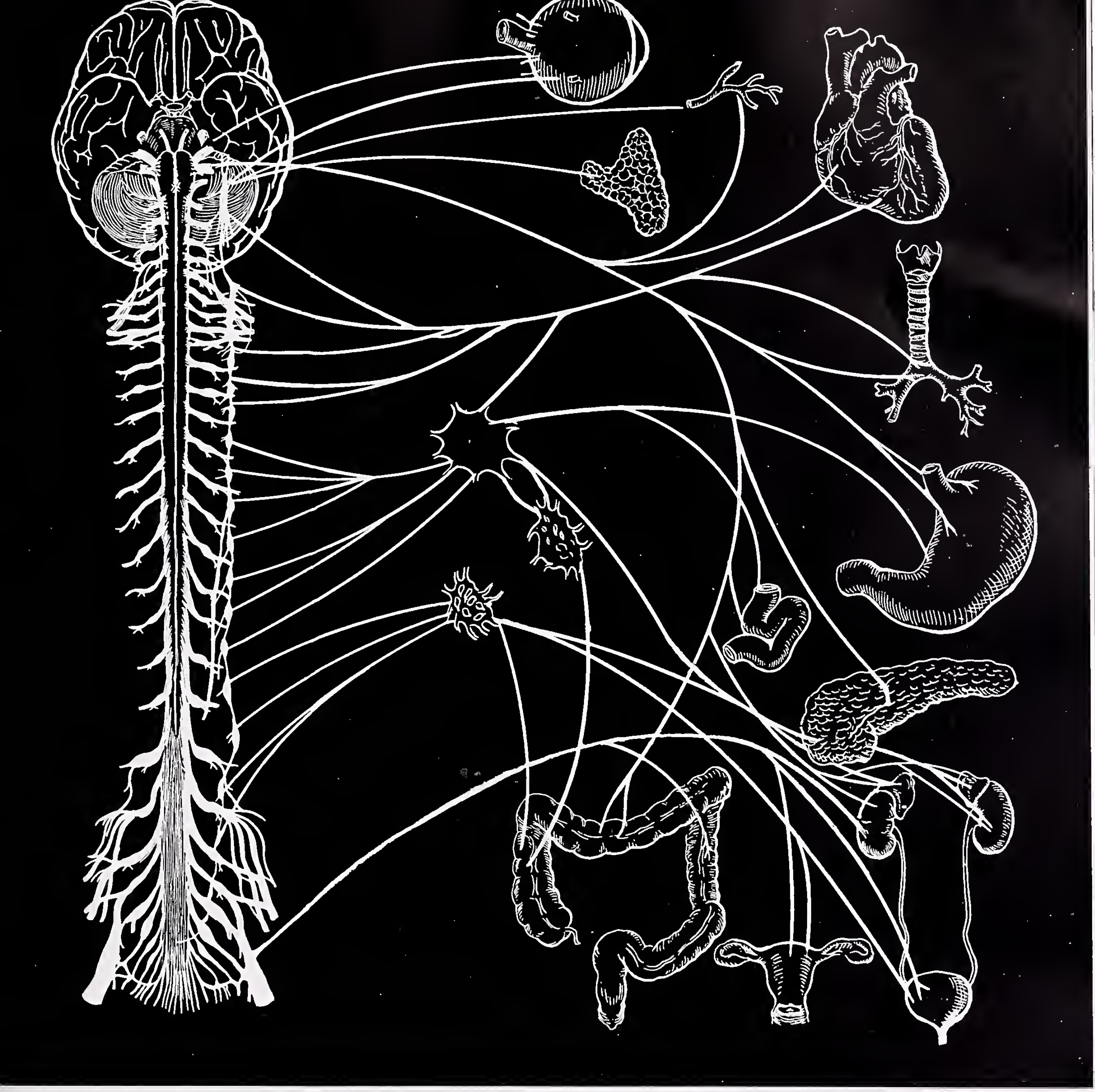
This is an interesting and relaxing little book.

SCIENTIFIC PRINCIPLES IN NURSING. By N. Esther McClain, R.N., B.S., M.S. Second edition, illustrated. Pp. 449, Cloth. Price, $3.50. St. Louis: C. V. Mosby Company, 1953.

The author has brought up-to-date the latest information in the nursing arts. The book is divided into five sections covering Orientation to Hospital Nursing, The Patient in the Hospital, The Patient's Needs, Making the Diagnosis, and Therapeutic Measures.

Each chapter is made more useful for the student nurse by the summary, the exercises, and the suggested Performance Check List for Discussing a Patient.

The book is clearly written and well illustrated. The clear discussion of the scientific principles involved in the various procedures is one of the most important features of this book. Nurses and nursing instructors will find this book invaluable.



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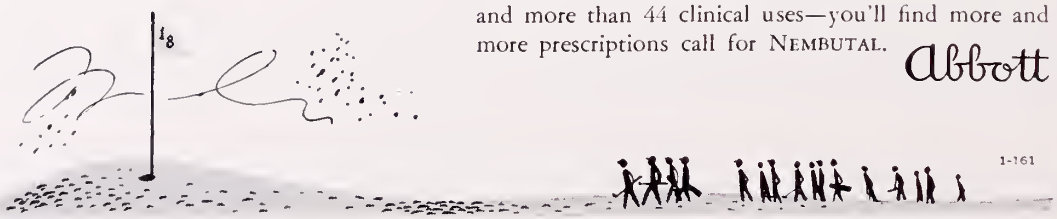

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Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00
Child over age 19	2.50	5.00	7.50	10.00

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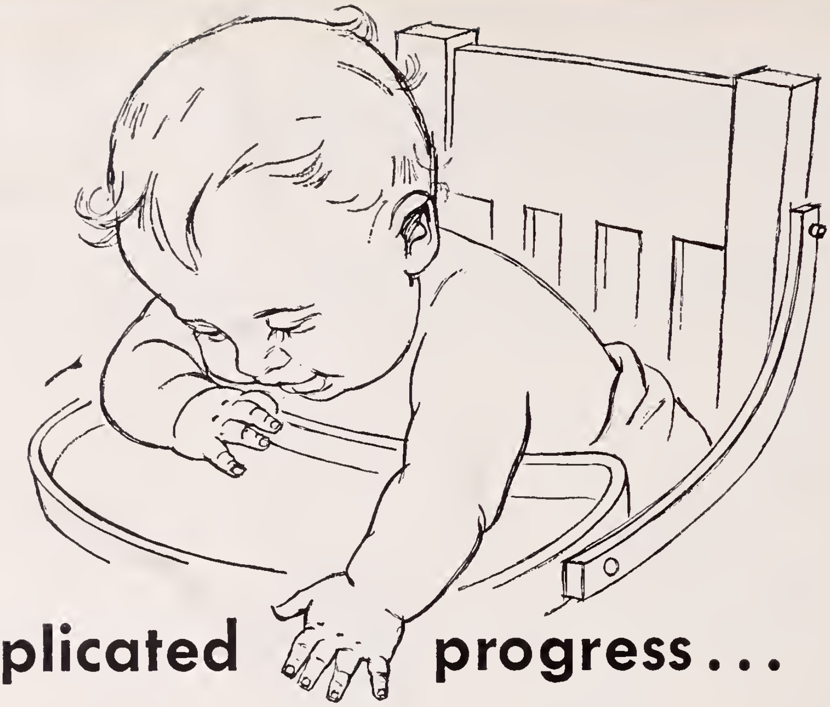

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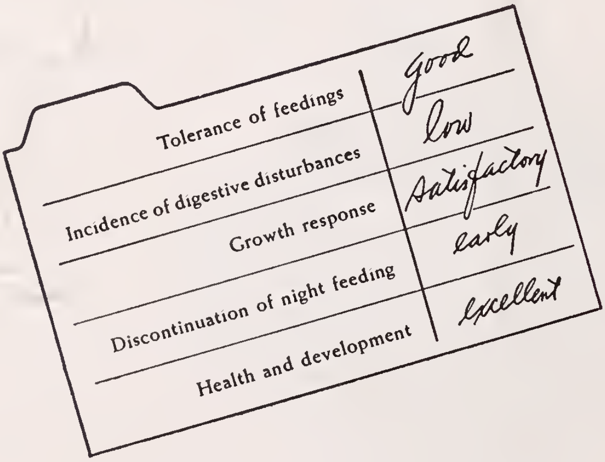

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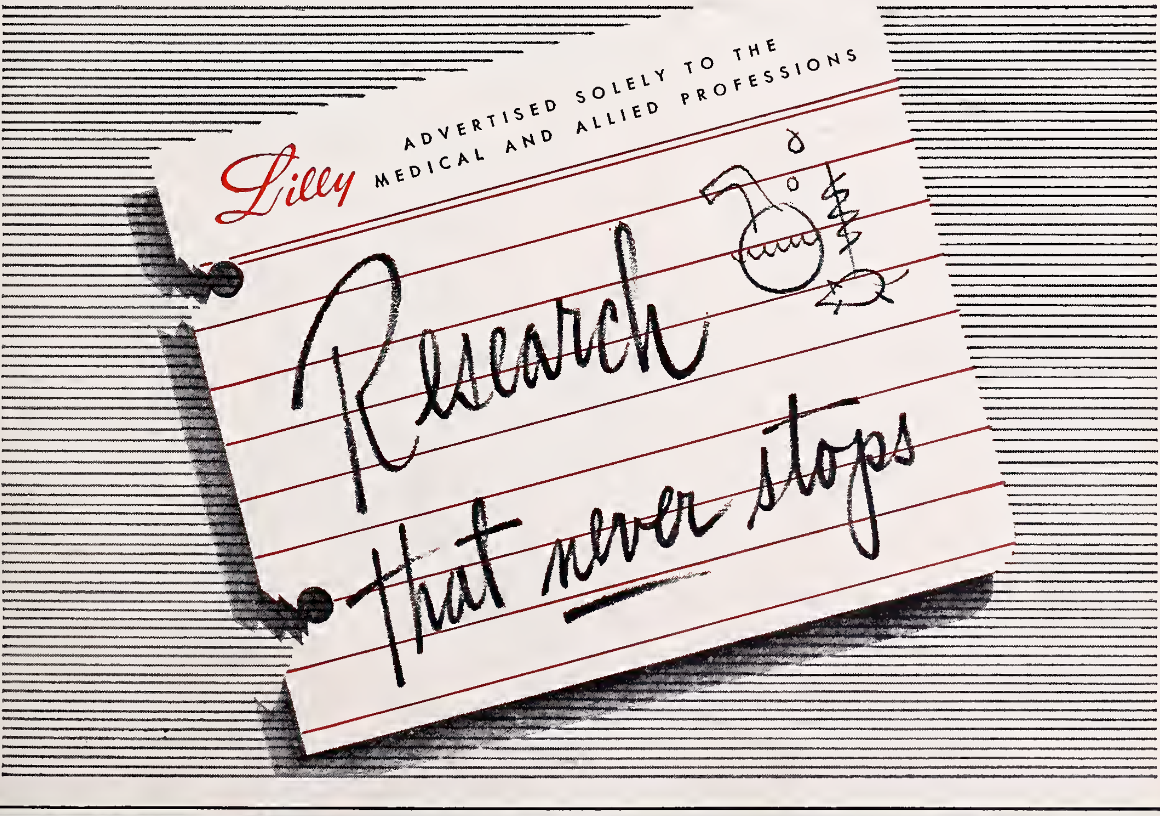
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(1) Krantz, J. C., and Carr, C. J.: The Pharmacologic Principles of Medical Practice, Baltimore, The Williams & Wilkins Company, 1949 (Reprinted 1950), p. 518. (2) *ibid,* p. 515. (3) Carter, S.: Epilepsy, in Conn, H. F.: Current Therapy 1952, Philadelphia, W. B. Saunders Company, 1952, p. 612. (4) Salter, W. T.: A Textbook of Pharmacology, Philadelphia, W. B. Saunders Company, 1952, p. 231.

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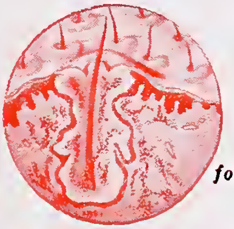
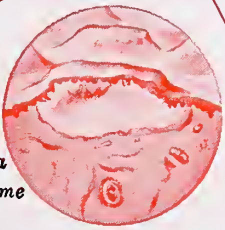
skin infections and antibiotics





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1. *Bednar, G. A.: South. M. J. 46:298 (March) 1953.*
2. *Wright, C. S. et al.: A. M. A. Arch. Dermat. & Syph. 67:125 (Feb.) 1953.*
3. *Robinson, H. M. et al.: South. M. J. (in press).*
4. *Andrews, G. C. et al.: J. A. M. A. 146:1107 (July 21) 1951.*

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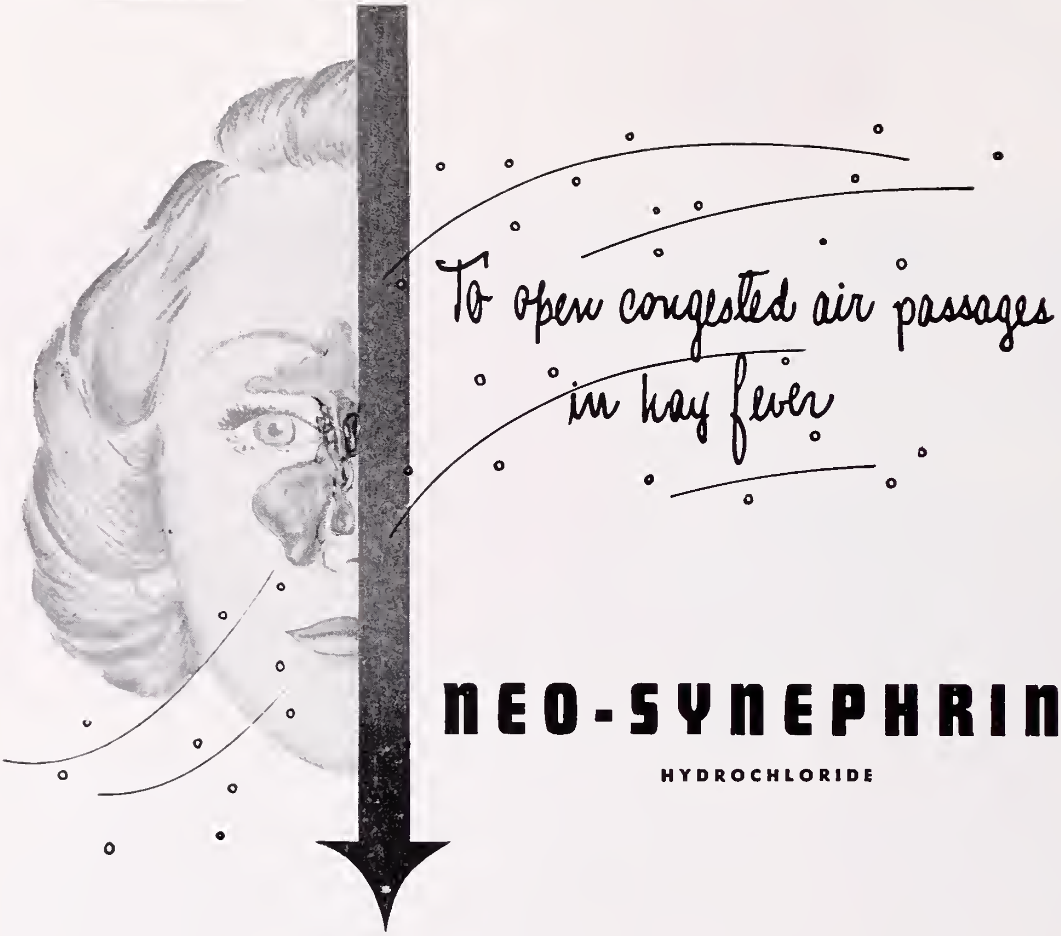
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[1] Von Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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Meat and its applicability in the Dietary Management of Atherosclerosis

Contrary to the former belief that serum cholesterol levels are primarily related to ingested animal fat and consequently to dietary cholesterol, it now appears that the total amount of fat in the diet, not its source or cholesterol content, is a more important factor in determining the blood cholesterol concentration.[1,2,3,4] Clinical observation has shown that ingestion of vegetable fat—which contains no cholesterol—will, like fats of animal origin, raise the serum cholesterol level.[3, 5]

Recent basic research on the influence of fats and cholesterol on human health has done much to further progress in the fight against atherosclerosis. It will serve well in dispelling the mistaken fear that reasonable amounts of foods of animal origin predispose the individual to this vascular disease.[6] As a matter of fact, a dietary inadequate in essential nutrients but providing too many calories and too much fat from *any* source may well be an important factor underlying the deposition of fat and cholesterol in the arteries and liver.

Cumulative evidence indicates that lowered blood levels of cholesterol may be effected by restricting the total fat intake.[1] Except in instances of refractory hypercholesteremia, in which a daily fat intake as low as 10 Gm. may not reduce cholesterol levels to normal, diets containing 20 to 30 Gm. of fat, or even more, often produce low cholesterol blood levels. In the clinical application of this principle, various palatable, low fat diets which supply three servings of meat daily (containing 18 Gm. of fat) have recently been suggested for the dietary management of arteriosclerosis and for enlisting the cooperation of patients.[1] The meat servings were chosen from a large variety of cuts and kinds of meat (fat trimmed off, as lean as possible). Meat adds to the eating appeal of the fat-restricted diet and contributes important amounts of biologically complete protein, the B group of vitamins including B_{12}, and food iron—all of which are important for a good state of nutrition in the atherosclerotic patient.

---

1. Hildreth, E.A.; Hildreth, D.M., and Mellinkoff, S.M.: Principles of a Low Fat Diet, Circulation *4*:899 (Dec.) 1951.
2. Bloch, K.: The Intermediary Metabolism of Cholesterol, Circulation *1*:214 (Feb.) 1950.
3. Keys, A.; Mickelson, O.; Miller, E.V.O., and Chapman, L.B.: The Relation in Man Between Cholesterol Levels in the Diet and in the Blood, Science *112*:79, 1950.
4. Gubner, R., and Ungerleider, H.E.: Arteriosclerosis, a Statement of the Problem, Am. J. Med. 6:60, 1949.
5. Hildreth, E.A.; Mellinkoff, S.M.; Blair, G.W., and Hildreth, D.M.: The Effect of Vegetable Fat Ingestion on Human Serum Cholesterol Concentration, Circulation *3*:641 (May) 1951.
6. King, C.G.: Trends in the Science of Food and Its Relation to Life and Health, Nutrition Rev. *10*:1 (Jan.) 1952.

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*IODINE	0.15 mg.
*IRON	12 mg.
MAGNESIUM	120 mg.
MANGANESE	0.4 mg.
*PHOSPHORUS	940 mg.
POTASSIUM	1300 mg.
SODIUM	560 mg.
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BIOTIN	0.03 mg.
CHOLINE	200 mg.
FOLIC ACID	0.05 mg.
*NIACIN	6.7 mg.
PANTOTHENIC ACID	3.0 mg.
PYRIDOXINE	0.6 mg.
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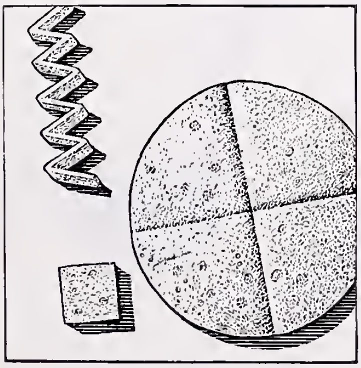

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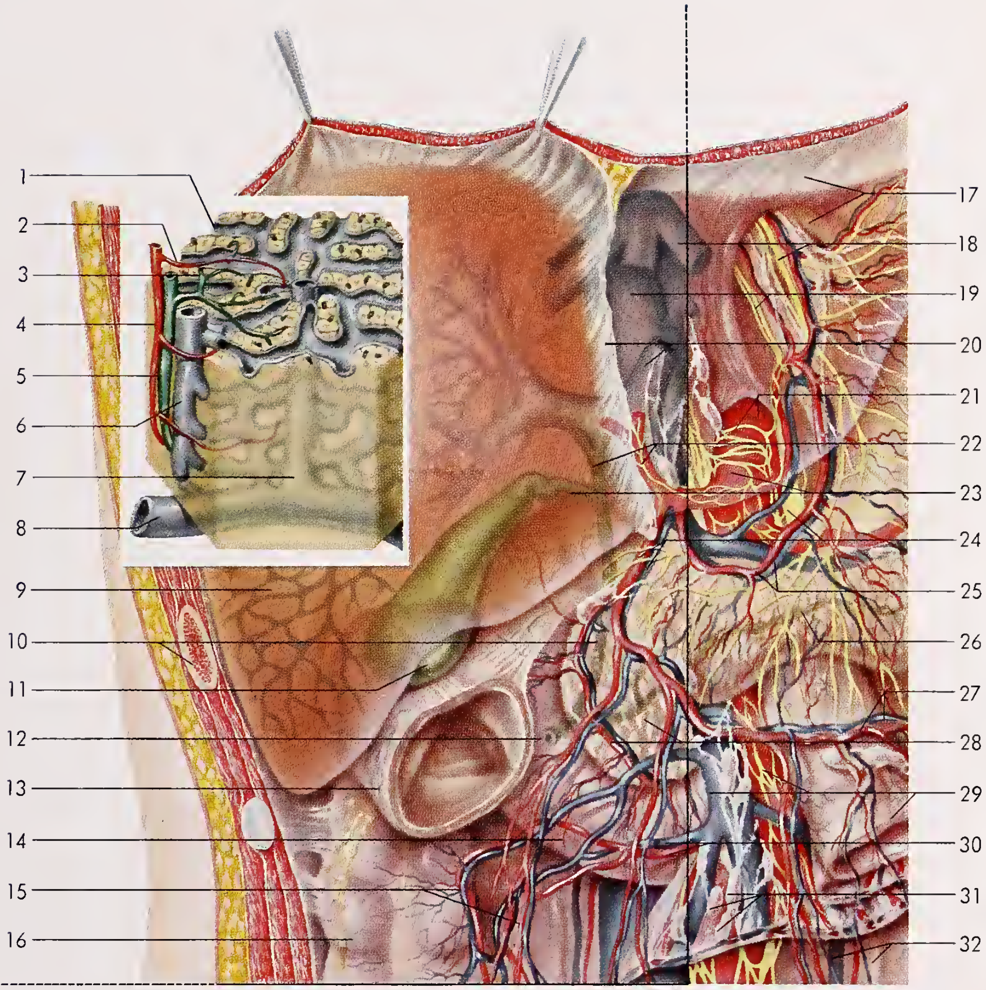

1 Sinusoid
2 Arteriole
3 Bile capillary
4 Branch of hepatic artery
5 Bile duct
6 Branch of portal vein
7 Central vein
8 Branch of inferior vena cava
9 Right lobe of liver
10 Common bile duct and tenth rib
11 Gallbladder
12 Papilla of Vater
13 Transverse colon
14 Duodenum
15 Branches of right colic artery and vein
16 Ascending colon
17 Coronary ligament and esophagus
18 Left hepatic vein and left vagus nerve
19 Inferior vena cava and right vagus nerve
20 Falciform ligament and branch of portal vein
21 Abdominal aorta and celiac plexus
22 Hepatic duct and hepatic artery
23 Cystic duct and celiac artery
24 Celiac ganglion and gastroduodenal artery and vein
25 Left gastric artery and coronary vein
26 Pancreatic duct
27 Right gastroepiploic artery and vein
28 Head of pancreas and pancreaticoduodenal artery and vein
29 Superior mesenteric artery and vein, and jejunum
30 Right colic artery and vein
31 Superior mesenteric lymph nodes
32 Inferior mesenteric vein and left ureter

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VOLUME 25
NUMBER 7

JULY, 1953

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HIP FRACTURES

At the Delaware Hospital

Joseph F. Hughes, M. D.,*
Wilmington, Del.

This is a review and study of 221 cases of hip fractures in the neck and intertrochanteric area of the femur. These cases constitute all that were treated at the Delaware Hospital from February, 1946, to January 1, 1953.

Anatomy

Fractures about the hip are classified according to their anatomic location in the proximal end of the femur and these are subdivided under types in each classification.[1] There are two classes, namely, the intracapsular and the extracapsular fractures. The intracapsular fractures are fractures of the neck of the femur. These can be subdivided into subcapital, transcervical, and basilar fractures. After closed reduction and internal fixation of displaced neck fractures, aseptic necrosis of the femoral head may occur in 15% to 33% of the cases. In undisplaced neck fractures without operation, the incidence of aseptic necrosis may be as low as 13%.[5] Extracapsular fractures occur in the intertrochanteric, transtrochanteric, and subtrochanteric regions. Comminution with involvement of two or more regions of the trochanter may be present. Fractures of the intertrochanteric region present the problem of maintenance of length and position, rather than of the attainment of union. These fractures are notorious for their tendency to unite by any type of treatment or lack of treatment.

In this article all the intracapsular fractures are classified as fractures of the neck of the femur. The extracapsular fractures of the femur are all called intertrochanteric fractures.

Problems of Treatment

Hip fractures may result from severe trauma in patients of any age, but these fractures occur more often in older patients. Because of decalcification with advancing years, fractures of the hip in elderly people frequently result from minor trauma.

Cleveland, Bosworth and Thompson[3] stated: "These elderly people represent a veritable museum of pathologic changes antedating their traumas." Many of the patients in this series presented severe cardiac, renal, metabolic, and senile manifestations. They were disoriented, incontinent, febrile, acidotic, or decompensated on admission to the hospital, and all presented difficult nursing problems from the beginning. In order to prevent complications from prolonged recumbency, internal fixation of the fracture is a very satisfactory method of treatment. This treatment was popularized in 1931 by Smith-Petersen,[6] who introduced a solid three flanged nail through the trochanteric region across the site of the fracture into the head of the femur, after adequate reduction of the fracture. The Smith-Petersen nail is appropriate for fixing neck fractures of the femur. It was modified by cannulating it to use a Kirschner wire as a guide. Jewett later modified the nail so that it had a plate attached to it. The Jewett nail is used mostly for intertrochanteric fractures and is a great aid in preventing coxa vara and external rotation deformities.

Clinical Observations

In this series of 221 patients there was a total of 224 fractures, as three of the patients each had 2 hip fractures.

Age. The patients ranged in age from 16 to 93 years. 174 (79%) of our patients were more than 60 years of age. Table I shows the distribution of the patients by decades.

TABLE I

AGE INCIDENCE OF HIP FRACTURES

16-20 yrs. — 1	20-29 yrs. — 6	30-39 yrs. — 9
40-49 yrs. —12	50-59 yrs. —19	60-69 yrs. —43
70-79 yrs. —66	80-89 yrs. —59	90-93 yrs. — 6

From the Orthopedic Service, Delaware Hospital.
*Resident in Surgery, Delaware Hospital.

Sex. The ratio of Caucasian females to males was approximately 2 to 1. There were 138 white females and 70 white males. There was a low incidence among colored patients, there being only 8 colored male and 5 colored female patients.

Classification. There were 102 fractures of the neck of the femur and 121 intertrochanteric fractures. One hip fracture was not classified because the patient was only in the hospital ½ hour before she died, and no x-rays were obtained.

Mortality. The total number of deaths directly attributed to the hip fracture was 33. The mortality rate was 14.93%.

System Employed to Evaluate End-Results[2]

In order to evaluate the end results as carefully as possible the following groups were selected:

1. *Excellent.* Patients with the fracture healed in an anatomic position, the hip completely asymptomatic, and the patient able to go up and down stairs unaided.

2. *Good.* Patients with solid union of the fracture both clinically and by x-ray. Some of these patients had a slight limitation of hip motion. They were able to walk on smooth surfaces unaided, if they could walk before the injury. If they were unable to walk beforehand, a good result was obtained if clinical and x-ray improvement justified it.

3. *Fair.* These patients had solid union of the fracture, but there was some residual pain in the hip on walking. They needed crutches or a cane. However, if a patient could not walk prior to the injury, the same method was used as mentioned in the previous paragraph.

4. *Poor.* In this group we place those patients who were never able to walk after the injury. They were either confined to bed or a wheel chair, and poor union existed.

5. *Fatal.* In this group is included any patient who died prior to clinical improvement of the fracture. By clinical improvement we mean that the patient was well enough to leave the hospital and to start a normal convalescence at home.

Treatment

The types of treatment carried out fell into 2 major groups, namely, non-surgical and surgical. 71 fractures were treated by nonsurgical means. The patient who lived ½ hour after admission with the unclassified fracture is considered as a patient treated by nonsurgical means. 153 were treated by some means of internal fixation.

Nonsurgical Cases:

Fracture of the neck: On examining Table II we see that bed rest used as a treatment for these fractures carries the high mortality rate of 67%. 33% obtained excellent results and these probably had undisplaced fractures. The average mortality for conservative treatment was 44%.

Intertrochanteric fractures: Bed rest as a treatment carried a mortality rate of 41%. Patients with intertrochanteric fractures did better from the standpoint of morbidity and mortality than those with fractures of the neck of the femur. This is to be expected because, as noted previously, intertrochanteric fractures will often unite in spite of treatment.

TABLE II
RESULTS OF NONSURGICALLY TREATED HIP FRACTURES

Type of Treatment	Total	Traced	Excellent		Good		Fair		Poor		Died	
			No.	%*	No.	%*	No.	%*	No.	%*	No.	%*
FEMORAL NECK:												
Bed Rest	10	9	3	33							6	67
Skin traction	6	4	1	25	1	25	1	25			1	25
Spica cast	6	5	2	40	1	20	1	20			1	20
INTERTROCHANTERIC:												
Bed rest	21	17	2	12	4	24	2	12	2	12	7	41
Skin traction	6	6	2	33	1	17	2	33			1	17
Well leg traction	11	8	2	25	2	25	3	37	1	13		
Kirschner wire and traction	1	1	1	100								
Spica cast	9	6	3	50	3	50						
UNCLASSIFIED:												
Bed rest	1	1									1	100
Totals	71	57										

* Percent of traced

TABLE III
SUMMARY OF PATIENTS TREATED BY CONSERVATIVE MEANS WHO DIED

Type of Treatment	Age	Sex	Color	Date of Admission	Date of Death	Type of Fracture	Cause of Death
Bed Rest	76	F	W	5-11-46	6-10-46	N	Pneumonia
Bed Rest	76	F	W	2-22-46	3- 1-46	I	Senility, shock
Bed Rest	82	F	W	1-11-47	1-29-47	I	Chronic myocarditis, Atonic ileus, Senility
Bed Rest	80	F	W	1-15-47	4- 9-47	N	Chronic mitral valvulitis with myocardial failure
Spica Cast	77	M	W	5-10-47	6-18-47	N	Uremia
Bed Rest	84	M	W	5-29-47	6- 4-47	N	Circulatory shock
Bed Rest	86	F	W	12-15-47	1- 7-28	I	Cardiovascular accident, Carcinoma of stomach
Bed Rest	70	M	W	12-25-47	12-30-47	I	Skull fracture, Laceration of brain
Skin Traction	79	F	W	10-17-49	11- 3-49	N	Cerebral hemorrhage
Skin Traction	84	M	W	12-14-49	12-30-49	N	Coronary occlusion
Bed Rest	89	F	W	5- 9-51	5-14-51	I	Arteriosclerotic heart disease with congestive failure
Bed Rest	84	F	W	8-15-51	10-24-51	I	Pneumonia, atelectasis, arteriosclerotic heart disease
Bed Rest	67	F	W	9- 5-52	12-30-52	N	Osteosarcoma with metastasis
Bed Rest	24	M	C	5- 2-51	5- 4-51	I	Shock, ruptured urinary bladder and small intestine, massive retroperitoneal pelvic hemorrhage
Skin Traction	79	M	W	2- 3-51	2- 4-51	I	Congestive heart failure, pneumonia
Bed Rest	86	F	W	6-17-52	6-17-52	*	Cerebral thrombosis, only lived ½ hour
Bed Rest	80	M	W	5-14-52	5-14-52	N	Coronary thrombosis, only lived 1 hour

I—Intertrochanteric fracture N—Neck fracture *—Unknown type of fracture

71 fractures were treated conservatively and 17 died (Table III). This gives a mortality rate of 24%.

Surgical Cases:

Fracture of the neck: 68% of these fractures were treatel with insertion of the Smith-Petersen nail. The mortality rate was 9%. It is our opinion that the advantage of the Smith-Petersen nail over the Lorenzo screw is that the fragments can slide together without rotation as union takes places. The screw holds the fragments apart after the third week when there is absorption along the fracture line, and thus prevents union.

Intertrochanteric fractures: Here again 68% of these fractures were treated with the Jewett nail, the modified Smith-Petersen nail. Prior to January 1, 1953 secondary procedures, such as hip reconstructions and prostheses were not done, as they had been with the fractures of the femoral neck. In October, 1952, one patient sustained a fracture

TABLE IV
RESULTS OF SURGICALLY TREATED HIP FRACTURES

Type of treatment	Total	Traced	Excellent		Good		Fair		Poor		Died	
			No.	%*	No.	%*	No.	%*	No.	%*	No.	%*
FEMORAL NECK:												
Smith-Petersen nail	54	43	13	30	13	30	9	20	4	9	4	9
Includes: Moore nails Moriera screws Lorenzo screws	9	3							2	67	1	33
Hip reconstruction	4	4	1	25	1	25	2	50				
Hip fusion	2	1	1	100								
Blount plate	1	2	1	50			1	50				
Vitallium prosthesis	5	5	2	40	1	20	1	20				
Jewett nail	5	1					1	100				
Totals	80	59										

* Percent of traced

TABLE V
RESULTS OF SURGICALLY TREATED HIP FRACTURES

Type of treatment	Total	Traced	Excellent		Good		Fair		Poor		Died	
			No.	%*	No.	%*	No.	%*	No.	%*	No.	%*
INTERTROCHANTERIC												
Jewett nail	50	44	7	16	15	34	9	20	7	16	6	14
Blount plate	15	11	4	36	2	18	2	18			3	27
Smith-Petersen nail	6	6	2	33	2	33	1	17			1	17
Smith-Petersen nail with well leg traction	2	2			1	50	1	50				
Totals	73	63										

* Percent of traced

of the basilar neck of the femur with a fragment of bone detached from the greater trochanter. This was treated with a Jewett nail. In December, 1952, the nail was found by x-ray to be broken. In April, 1953, a hip reconstruction was performed on this patient.

TABLE VI
SUMMARY OF PATIENTS TREATED BY OPERATIVE MEANS WHO DIED

Type of Treatment	Age	Sex	Color	Date of Admission	Date of Death	Type of Fracture	Cause of Death
Moriera pin and stud bolt screw	86	F	W	1-20-48	1-27-48	N	Arteriosclerotic heart disease
Smith-Petersen Nail	85	F	W	3-28-47	5-18-47	N	Senility, myocarditis
Blount plate	75	M	C	12-26-47	1- 8-48	I	Anesthesia (pentothal, nitrous oxide and oxygen)
Smith-Petersen nail	79	F	W	2-14-49	3- 1-49	N	Cerebral hemorrhage
Jewett nail	54	M	C	11-18-49	12- 6-49	I	Pulmonary embolism
Smith Petersen nail	75	F	W	10-27-50	1-21-53	N	Congestive heart failure
Fred Thompson prosthesis - 2 yrs. later							
Smith-Petersen nail Spica Cast	67	F	W	10- 7-50	11-27-50	N	Myocardial failure, hypertensive cardiovascular disease
Blount Plate	83	F	W	4-10-49	4-27-49	I	Senility, hip fracture
Smith-Petersen nail	86	F	W	7-20-51	8- 2-51	I	Cerebral hemorrhage
Smith-Petersen nail	80	M	W	7- 3-51	7-20-51	N	Generalized arteriosclerosis with arteriosclerotic heart disease
Jewett nail	74	F	W	11-23-51	12- 7-51	I	Coronary thrombosis
Jewett nail	91	F	W	1-22-51	2-26-51	I	Cerebrovascular accident, pneumonia
Jewett nail	70	F	W	5- 6-51	5-28-51	I	Senility, arteriosclerotic cardiovascular disease
Jewett nail	72	F	W	9- 9-52	10- 2-52	N	Cerebral thrombosis
Jewett nail	65	M	W	8-13-52	9-14-52	I	Pneumonia, Encephalomalasia
Smith-Petersen nail	78	M	W	9-17-50	10-10-50	N	Acute pyelonephritis

I—Intertrochanteric fracture N—Neck fracture

153 fractures were treated by surgical means and 16 patients died. This gives a mortality rate of 10%, which is a great improvement over the non-surgical mortality.

Comment on Surgically Treated Patients

Early ambulation is possible, which lowers the incidence of complications resulting from prolonged recumbency. Very often the patients return home in two or three weeks after the operation. Vitallium prosthesis is invaluable for non-union and aseptic necrosis of the head. Five cases had this type of repair. One patient died, but she was in very poor condition, postoperatively. She was 75 years old, and had no desire to eat. She lived 3 months after the operative procedure. However, the other 4 patients are living and doing well, according to personal communication from their physicians.

Many fractures of the hip with displacement are being treated surgically. Cleveland and Bailey[5] found that "our experience leads us to believe that the best means to secure this optimum result," i.e. to get uncomplicated union of the displaced fractures of the femoral neck in 2 out of 3 cases, "is anatomic reduction and firm, technically sound fixation." This evolution has been facilitated by the great advances in aseptic technique, the improvement in the various types of anesthesia, the assistance obtained by radiological examination, the introduction of inert metals, the increased safety of the patient afforded by the prevention and care of shock with the use of blood and its derivatives and a better understanding of electrolytic balance, the care of the diabetic with insulin, and finally, the prevention and control of infection by antibiotics. There were 4 cases of infection in the surgical cases (3% of the traced cases). It seems a far cry to the days of Lister, less than 100 years ago, when the first wiring of a fracture of a patella was performed with his colleagues stating that if the patient lost limb or life, the surgeon should be tried for manslaughter.[4]

Conservative versus surgical treatment. Although there were no significant differences in age, sex, the type of general medical and nursing care, or general condition on admission between the patients treated conservatively and those treated surgically, the following factors were found to be significant in the end results:

1. There was an overall mortality rate of 30% of 57 traced patients who had frac-

tures treated by conservative means, as compared to an overall mortality rate of 13% in 122 traced patients who had fractures that were treated surgically.

2. The amount of nursing care, general medical care, and attention required of every one concerned was much greater for those patients treated conservatively than for those treated surgically. In only one of the 16 fatalities occurring in the surgical cases could the death be attributed to the operation itself. An autopsy was performed on this patient and the findings were compatible with an anesthetic death. The remaining causes of death did not differ significantly from thoes of the 17 fatalities among the conservatively treated patients.

Conclusions

1. In the past 6 years 224 fractures of the hip were treated at the Delaware Hospital. More cases were treated surgically, 153, against 71 cases treated conservatively.

2. The mortality rate for treatment of intertrochanteric and displaced neck fractures of the femur may be considerably lessened by closed reduction and insertion of adequate internal fixation.

3. At the Delaware Hospital the preferred means of internal fixation for fractures of the neck of the femur is the Smith-Petersen nail, and for the intertrochanteric fracture, the Jewett nail.

4. A greater number of patients obtain good or excellent results after hip fractures when closed reduction and internal fixation are employed than when non-surgical treatment is used.

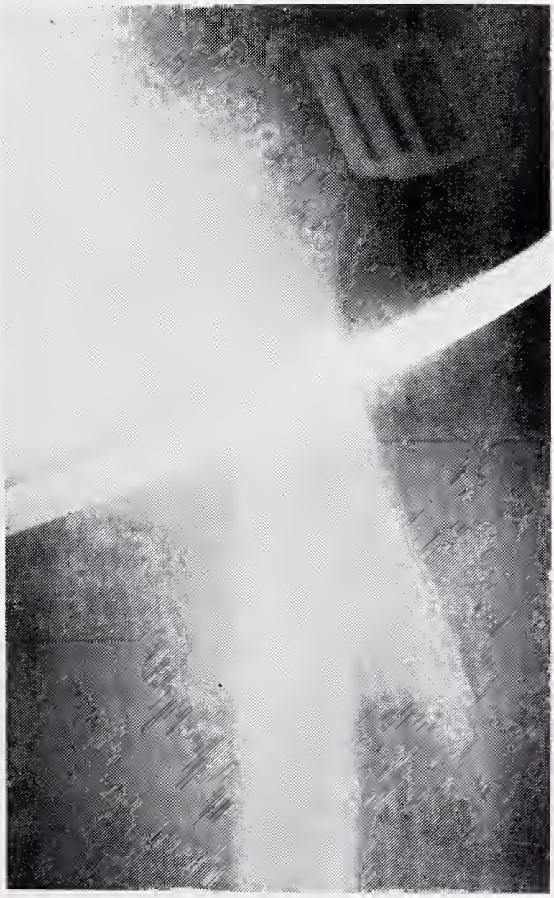

Fig. 1-a J. O., age 29, Case No. 196720, showing an intertrochanteric fracture involving the left femur with an oblique fracture involving upper third of the shaft.
10/22/52

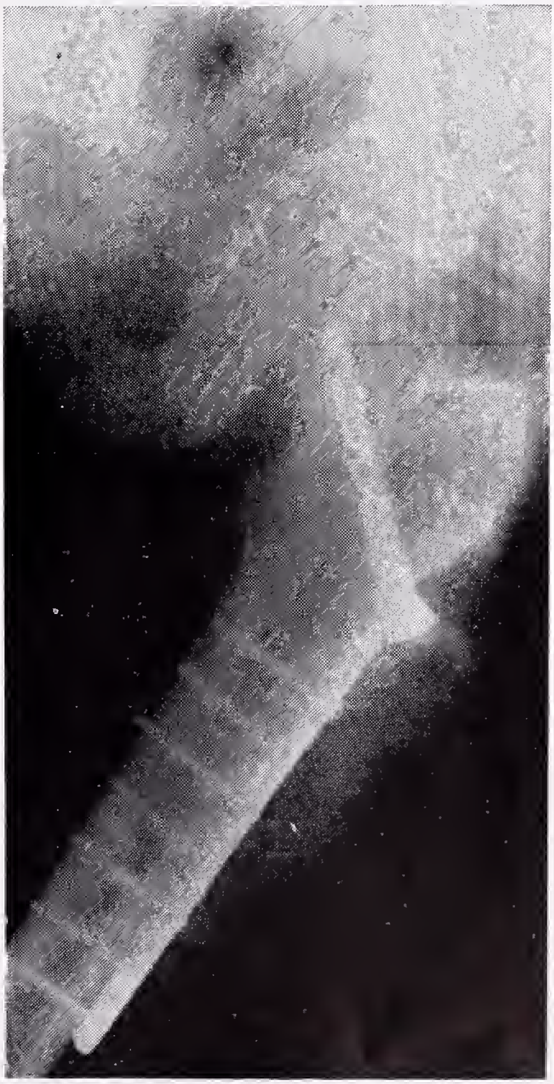

Fig. 1-b Case No. 196720, Anterior-posterior view of left femur 12/17/52 after inserting Jewett nail.

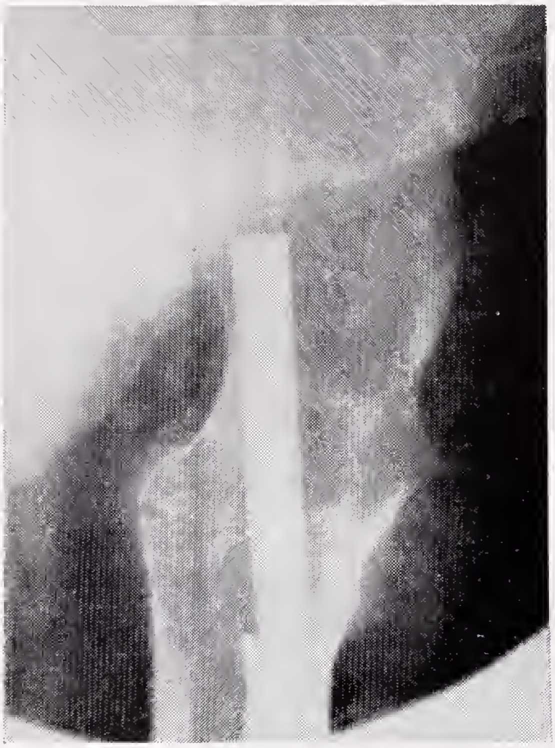

Fig. 1-c Case No. 196720, Lateral view 12/17/52 —result excellent. Patient ambulatory.

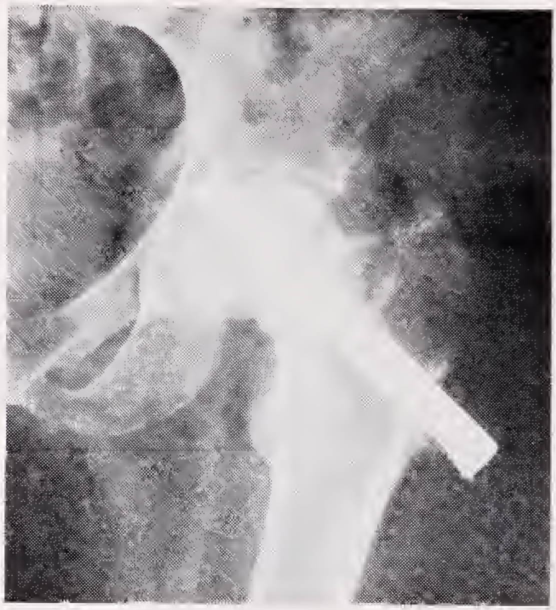

Fig. 2-b Case No. 142801, The pin has erroded through the head of the femur and is protruding into the acetabular fossa. The line of fracture is still visible.
11/5/47

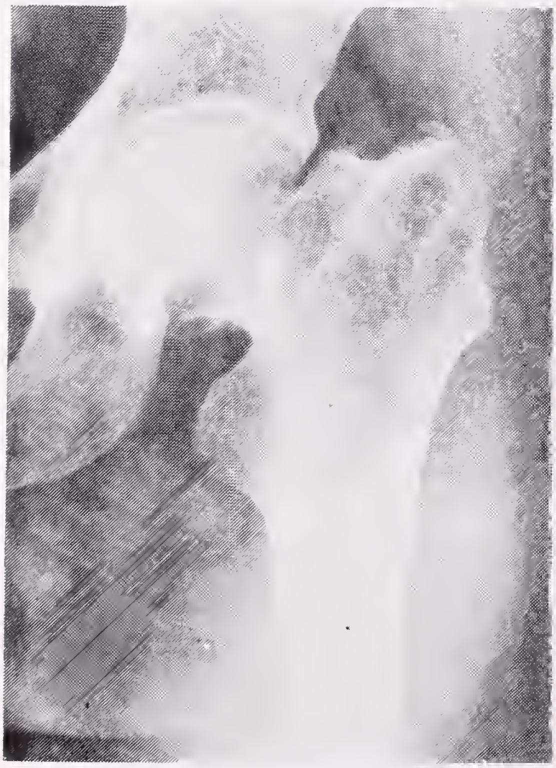

Fig. 2-a L. S., age 64, Case No. 142801, Anterior-posterior view showing fracture through the neck with about 1.5 Cm. shortening.
12/16/46

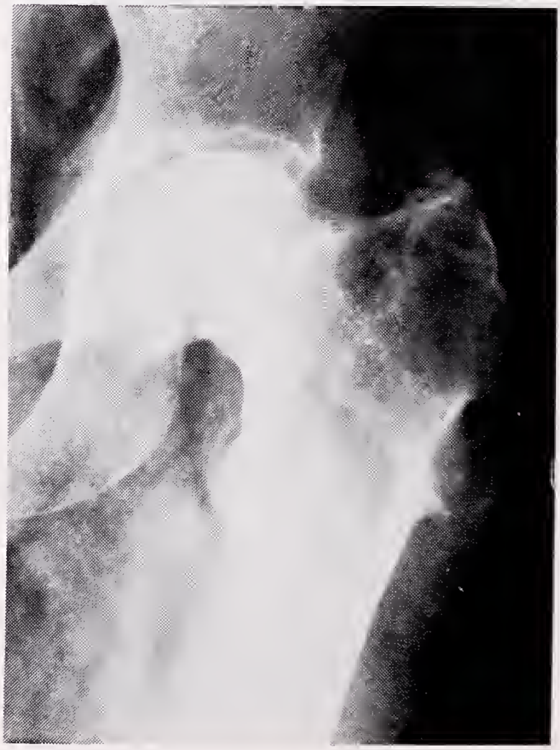

Fig. 2-c Case No. 142801.

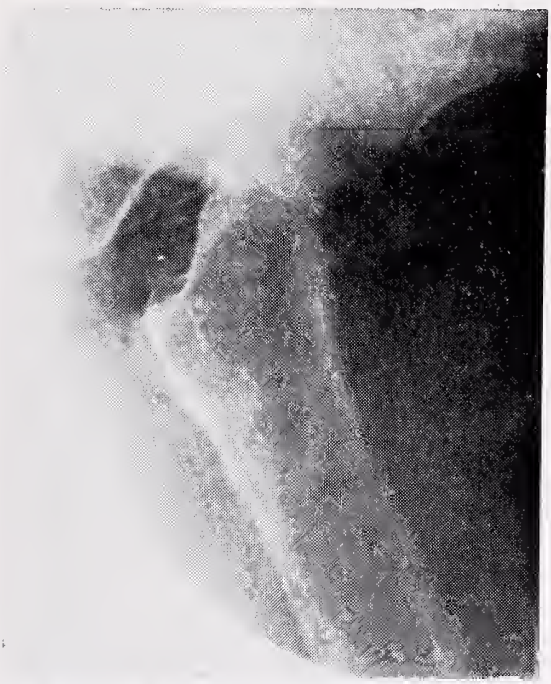

Fig. 2-d Case No. 142801, Smith-Peterson nail has been removed. There is evidence of bony union and some irregularity of the acetabulum.
1/27/48 (See 2-c)

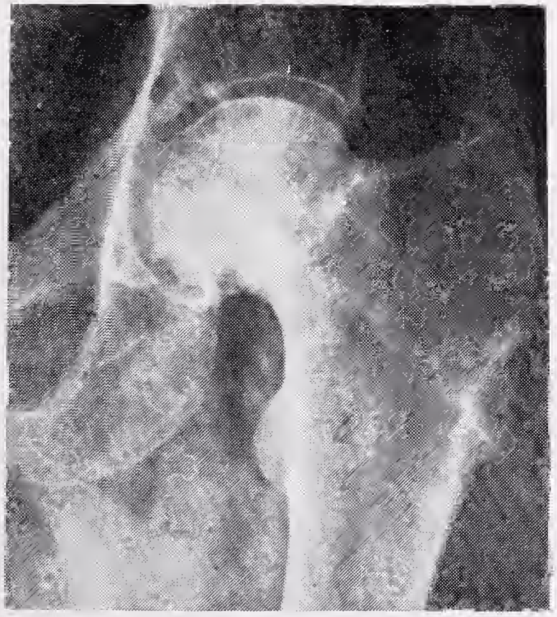

Fig. 2-e Case No. 142801, Shows complete union and some flattening of head. Patient uses cane or sliding chair to walk. Result fair.
4/7/48

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METHYL ALCOHOL POISONING

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The severity of the poisoning associated with the inhalation or direct ingestion of methyl alcohol has been recognized for many years. Blindness has been reported after the ingestion of as little as 4 cc.; death, with as little as 10 cc.

Until recently it has been widely believed that since the repeal of the prohibition act in 1933, poisoning from methyl alcohol ingested as an alcoholic beverage is a rare occurence. In New York City during the 2 years preceding the repeal of the prohibition act, a total of 81 deaths was attributed to methyl alcohol. In the next 2 years, the total declined to 16.[3]

In 1943 Voegtlin and Watts[4] reported 6 cases with 5 fatalities. Kaplan and Levreault[5] reported 42 cases with 13 fatalities in 1945. The same year Jacobson et al[6] reported 18 cases with 6 fatalities. Chew et al[2] presented 31 cases with 5 fatalities in 1946. Recently, Keeney and Mellinkoff[7] reported a series of 23 cases with 6 fatalities. All of the above patients were service men.

At the Delaware Hospital in the past 2 years a diagnosis of methyl alcohol poisoning has been made 8 times with 5 mortalities. A positive history of recent alcohol ingestion was obtained in 4 of the 8 cases. Methanol ingestion was initially admitted by one patient and suggested by the history of 2 others. On subsequent investigation ingestion of methyl alcohol was affirmed in 2 other patients. Five of the 8 patients had blood samples tested by the method of Ozburn[8] for the presence of methyl alcohol with positive results in all 5 of those tested. Four of the 5 deaths occurred within 2 hours of admission. One patient survived 14 hours before expiring; his case will be presented in this paper.

It is of interest to note that one of the patients who expired was found in his room drinking Sterno and a history of Sterno ingestion was obtained from 2 of the 3 patients who survived. Sterno, often referred to as "canned heat," is widely available in drugstores and hardware stores. The label states "for use only as a fuel" but does not include any specific warning that it is a poison if taken internally. Sterno[9] is a semi-solid colloidal gel which is essentially solidified methanol. For drinking purposes its liquid content of approximately 45 cc. is expressed by squeezing it in a cloth or between pieces of bread. The resulting extract is added to wine, soft drinks, or water. Allegedly, frequent handling of Sterno discolors the fingers blue; we have had no opportunity to confirm this by personal observation. In Wilmington, habitue's are colliquially referred to as "blue flamers."

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It is our contention that poisoning from methyl alcohol is not at all rare, especially among chronic alcoholics of a low economic level, and with an increased awareness of the prevalence of drinking methyl alcohol the diagnosis will be made with increasing frequency.

A patient intoxicated with methyl alcohol may initially appear to be an ordinary inebriate. However, it is not unusual for the methanol poisoned patient to present a puzzling syndrone, the diagnosis of which may be difficult or impossible unless the possibility of methanol intoxication is kept in mind. One case in which the clinical picture was highly suggestive of other illnesses will be presented and the pathologic physiology of methanol intoxication discussed.

CASE REPORT

F. V. W. Case No. 188093. A 65 year old Negro male was brought to the Emergency Room with the chief complaint of abdominal pain. He gave a history of several days of vomiting and diarrhea, frequency of urination, and marked thirst. The abdominal pain was dull in nature and most marked in the right lower quadrant. He admitted drinking one quart of unspiked sherry wine the day before. Later his friends stated that when the patient first became ill he admitted drinking several cups of some kind of alcoholic beverage just prior to the development of his symptoms, the exact contents of the alcoholic mixture being unknown.

On admission, he appeared acutely ill. Blood pressure was unobtainable. Pulse was 120. Temperature was 99°F. The patient's breath had had an odor described by one observer as having a "fruity" quality but not typical of acetone. Hyperpnea with apparent air-hunger was noted. Flexion of the head caused slight pain in the neck and head. His lungs were clear to auscultation. There was abdominal distention, and right lower quadrant and epigastric tenderness with no palpable abdominal masses. Peristalsis was faint; the abdomen was soft. Rectal examination revealed normal feces. Deep tendon reflexes were hyperactive in the lower extremities.

By catheterization only a few drops of urine were obtained which gave a negative Clinitest reaction; no acetone test was performed. Laboratory studies included blood urea nitrogen, 15 mg.%; carbon dioxide combining power, 20 vol.%; blood sugar, 320 mg.%. Electrocardiogram revealed a deep S I, small Q II and Q III, with inverted T waves in II, III, and CR II. A flat plate of the abdomen showed nothing abnormal.

The initial clinical impressions were diabetes mellitus with acidosis, posterior myocardial infarction, lower nephron nephrosis secondary to hypotension, and possible methyl alcohol intoxication.

The patient was treated with regular insulin and intravenous fluids, including 5% and 10% glucose in saline, normal saline, and whole blood. In 4 hours his carbon dioxide combining power increased from 20 vol.% to 31 vol.%. During this time his blood sugar fell from 320 mg.% to 46 mg.% after a total dose of 100 units of regular insulin. The hypoglycemia was corrected by the infusion of hypertonic glucose. About this time, the blood methyl alcohol test was reported as positive.

Fourteen hours after admission, the patient expired. During this time he excreted only 25 cc. of urine.

Post-mortem examination revealed generalized congestion of the lungs, liver, gastrointestinal tract, spleen, kidneys, and brain. Portal cirrhosis with focal necrosis and small areas of hemorrhage was present. There was myocardial fibrosis but no areas suggestive of recent infarction. The cerebrospinal fluid gave a positive methyl alcohol test.

The symptoms and signs of methyl alcohol intoxication may be divided into categories secondary to the various pharmacologic actions of methyl alcohol.[10, 11]

Like ethyl alcohol, methyl alcohol is a central nervous system depressant and has an irritant action on gastric mucosa. Thus any or all of the familiar symptoms of alcoholic intoxication may be manifest. As methanol is usually imbibed in combination with various ethanol containing beverages, symptoms of alcoholism alone are of no help in the diagnosis of methyl alcohol poisoning.

Methyl alcohol's well known specific toxicity for the optic nerve has been explained in several ways. One theory proposes that the formaldehyde and formic acid resulting from the partial oxidation of methyl alcohol have a direct irritant effect on the optic nerve. However, neutral formates which are quickly produced by formaldehyde's reaction with body protein are not extremely irritant.[11] More recently it has been suggested that tissue toxicity is directly proportional to the methanol concentration of the organ in question. Because of methanol's unlimited miscibility with water, its body distribution varies directly with tissue water content. It is therefore to be expected that the eye should be most severely attacked since introocular fluid has the highest percentage of water of all body fluids or tissues.[7]

Methanol ingestion causes a marked metabolic acidosis. It is this acidosis which is in large part responsible for the clinical picture of the poisoned patient.

Unlike ethyl alcohol, methyl alcohol is slowly and incompletely oxidized, the byproducts of its oxidation being formaldehyde and formic acid.[10] It is presumed to be this latter compound which is responsible for the metabolic acidosis of intoxicated patients as evidenced by their decreased carbon dioxide combining power and Kussmaul type respiration.

TABLE 1.

Pt.	CO_2 vol.%	Bld. Sug. mg.%	Urine Acetone	Meth. Alc.! Test
F. V. W.	20	320	?	+
B. B.	13	135	4+	+
H. S.	29	55	?	+
W. W.	13	150	Tr.	+
S. H.*	22	206	?	+

?—Not tested
Tr.—Trace
*—Post-mortem studies
!—Method of Ozburn (Ref. 8)

Blood chemistries were obtained in 5 of our 8 patients (Table 1). In each case carbon dioxide combining power was markedly lowered. Blood sugar levels varied from decreased to increased amounts. It is therefore easy to see how a misdiagnosis of diabetic acidosis could be made if hyperglycemia is present. In the presence of a low carbon dioxide combining power with a decreased, normal, or only slightly increased blood sugar, diabetic acidosis may be ruled out in favor of some other type of metabolic acidosis, such as methanol poisoning. In hyperglycemic patients, rapid induction of hypoglycemia when a small amount of insulin is given, as in the patient F. V. W. presented above, indicates that the acidosis is not completely secondary to the ketosis accompanying hyperglycemia, as it is in a purely diabetic acidosis.

In 2 of our patients acetonuria was observed. Acetonuria has been reported a frequent finding by Jacobson and by Keeney.[6, 7] Such an observation without an associated glycosuria should alert one to the possibility of methanol induced acidosis.

Neither methyl alcohol itself, formaldehyde, nor formic acid give a positive test for acetone using Rothera's method. Several possible explanations for the acetonuria suggest themselves. Wood alcohol, unless it is highly purified, varies a great deal in its percentage content of methyl alcohol. Among its impurities is acetone.[11] In addition, patients who have been on drinking sprees are apt to have had decreased caloric intake. Frequently they have been vomiting and usually they are clinically dehydrated. Most civilian patients seen with methanol poisoning will be chronic alcoholics in whom liver damage and resultant malfunction of carbohydrate regulating mechanisms is not unlikely. Thus, they may well have developed a starvation-state type of ketosis with resultant acetonuria.

The electrocardiographic changes in the patient F. V. W. presented above were suggestive of posterior coronary disease. He expired before repeat tracings could be obtained. No blood pressure was auscultable on admission and prolonged hypotension may have been an inducing factor in the production of myocardial ischemia. However, although diffuse myocardial fibrosis was present, no areas of recent infarction were found at autopsy. Symptoms suggestive of coronary occlusion were also present in Merrit's[12] case in which electrocardiographic abnormalities were noted in a tracing taken the second day of hospitalization, the abnormalities consisting of flat T waves in lead I, with inverted T waves in leads II, and III. All T waves were upright 2 days later.[12] In one of our patients (B. B., Table 1), a similar electrocardiographic changes were noted. At this time serum postassium was found to be 2.55 mEq/litre. (normal: 4.0-5.0 mEq./litre). Following the administration of potassium chloride, T waves assumed an upright position in all leads. It is suggested that the electrocardiographic changes occurring with methyl alcohol poisoning are due to hypokalemia secondary to the metabolic acidosis, as in acidotic diabeties.

The therapy of methyl alcohol poisoning is primarily directed at correcting the resulting acidosis with parenteral and intravenous alkalis such as sodium lactate and sodium bicarbonate.[2, 7]

SUMMARY

1. Methyl alcohol poisoning is not a rare occurrence. Eight cases have been diagnosed at the Delaware Hospital since 1951. Sterno is a frequent source of ingested methyl alcohol.

2. A case of fatal methyl alcohol poisoning is presented. Methyl alcohol intoxication may clinically simulate diabetic acidosis.

3. In addition to positive methyl alcohol blood tests, a lowered carbon dioxide combining power without glycosuria is highly suggestive of methyl alcohol poisoning, as is acetonuria without glycosuria.

4. Hypokalemia may be associated with the acidosis of methyl alcohol poisoning.

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ENTEROCOCCAL ENDOCARDITIS

Report of a Case Successfully Treated with Penicillin and Streptomycin

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Bader et al[1] have recommended that all treatment failures in subacute bacterial endocarditis be reviewed and reported in order to improve the methods of treatment in this frequently fatal disease. We believe that all cases of successful outcome should likewise be reported and offer the following case in support of that thesis.

Enterococcal endocarditis has presented a greater therapeutic problem with present day antibiotics than has the more common infection with alpha hemolytic streptococci.[2] This is due largely to the relative resistance of the enterococci to penicillin.[3] Reports of successful treatment of enterococcal endocarditis include the use of: penicillin in massive doses,[4] penicillin in combination with caronamide, [3, 4, 5] penicillin with concomitant heparin administration,[2] penicillin with streptomycin,[4] penicillin and aureomycin,[4] and aureomycin alone.[6]

After reviewing the literature, it is apparent that no categorical statement can be made regarding the antibiotic or combination of antibiotics which should be used in the treatment of enterococcal endocarditis. One must carry out *in vitro* sensitivity studies, along with procedures to demonstrate possible synergism of combined antibacterial agents. While awaiting the results of these studies, it is proper to initiate therapy with penicillin and streptomycin. The investigations of Jawetz[7] suggest that antagonism with this combination is highly unlikely, and that synergism might be expected.

CASE REPORT

T. A. (DH No. 188989), a 35 year old colored female, was admitted to the Medical Service of the Delaware Hospital on June 19, 1952, with a chief complaint of pain in the right index finger and right toe of about two weeks duration. The patient had suffered migratory joint pains at the age of 17, at which time she was put at bed rest for three months. She subsequently remained in good health until February, 1952, when an inevitable abortion occurred. A dilatation and curettage was performed on February 15, 1952, which was followed by a similar operation and hysterectomy in April, 1952. This was carried out for profuse vaginal bleeding, fever, and anemia. Pathological examination of removed tissue revealed acute inflammation and degenerated decidua and villi. Postoperative medication included 600,000 units

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of penicillin (total 4.2 million units), and 4 grams of a sulfonamide (total 8 grams) per day. At the time of discharge the patient had been afebrile for one day, but still showed an anemia. The patient was well for six weeks, except for aching in the thighs and an evening temperature elevation.

On May 30, 1952, the patient experienced a sudden sharp pain in the right little toe, and one week later a sudden severe pain in the tip of the right index finger. A "spot" under the nail of this finger was also noticed, with some swelling of the lateral surface of the distal phalanx. The family physician referred the patient to the Delaware Hospital for admission.

On admission, the patient appeared chronically ill. An oval-shaped subcutaneous hemorhage was noted on the flexor surface of the right little toe. There was a splinter hemorrhage under the nail of the right index finger, along with an Osler node on the same finger. No other petechial phenomena were noted. The lungs were clear by ascultation and roentgenography. There was a grade three systolic murmur replacing all of systole, and a crescendo-type presystolic murmur in the mitral area. A normal sinus rhythm was noted, with a pulse rate of 88. Blood pressure 95/70, temperature 99°, respirations 20. The liver and spleen were not palpable.

Admission laboratory studies showed 3.6 million RBC and 8,300 WBC, hemoglobin 11.2 gm., differential showed a slight left shift, with no abnormal cells noted. BUN 9.0 mg. per 100 cc., sedimentation rate (Cutler) 25 mm. in one hour. Urinalysis revealed *Esch. coli* and enterococci, with occasional erythrocytes and leukocytes, but no albumin. Admission blood cultures (venous and arterial) were positive for an enterococcus.

Penicillin was initiated one day after adadmission, in a dosage of 2.5 million units every 4 hours, while awaiting identification of the organism from the blood culture. On the third hospital day, the organism had been identified as *Streptococcus fecalis*, and on the fourth day, *in vitro* synergism with penicillin and streptomycin was demonstrated. At this time, 2 grams of streptomycin was combined with the daily dose of penicillin. On the seventh hospital day, the patient was still febrile, and had developed a petechial hemorrhage in the conjuctiva. The streptomycin was increased to 3 grams a day, and maintained, with the penicillin, for 30 days. Blood cultures taken on the third and fourth hospital days (on penicillin alone) were positive for *Streptococcus fecalis*, but 9 subsequent venous, arterial and bone marrow cultures were sterile.

No further embolic phenomena occurred during her hospital stay, and the patient remained afebrile for the remainder of her hospital stay. The hemoglobin fell to 10.1 gm., and the erythrocyte count to 3.5 million per cu. mm. A total of 1000 cc. of whole blood was administered in repeated small transfusions, to correct the anemia.

During the second week of therapy the patient developed urticaria, which was relieved by antihistamine therapy. On the 28th day of treatment a pyogenic ulcer developed on the buttock at the site of injection, which responded rapidly to local bacitracin therapy. Culture of the pus showed coliform bacilli and *Staphylococcus albus*.

Therapy was terminated after a total dosage of 540 million units of penicillin and 96 grams of streptomycin. Blood and bone marrow cultures taken 5 days after end of therapy remained sterile. The patient remains asymtomatic and afebrile after discharge, and the infection is considered to be arrested.

BACTERIOLOGY

The streptococcus isolated from arterial and venous blood cultures produced no hemolysis on human blood agar streak or pour plates incubated 48 hours at 37° C., and overnight in the refrigerator. Growth occurred in tryptose broth containing 6.5 per cent sodium chloride, and in 0.1 per cent methylene blue milk (with dye reduction and clotting). Lactose, sucrose and salicin were fermented promptly, with the production of acid. Colonies on 5 per cent sucrose agar were small and non-mucoid; no jelling occurred in 5 per cent sucrose broth. Loeffler's medium was not liquified in 48 hours. These characteristics served to identify the organisms as *Stretococcus fecalis*. Antibiotic susceptibility by the filter paper disc technic showed only moderate inhibition by penicillin and streptomycin. A serial tube dilution procedure showed the following minimum inhibitory concentrations: penicillin, 2.5 units per cc.; streptomycin, 50 micrograms per cc. Multiple staggered serial dilutions containing known mixtures of the two antibiotics demonstrated a synergistic activity of the combination. These resulted in the following minimum inhibitory concentrations, in combination: penicillin, 1.3 units per cc.; streptomycin, 12:5 units per cc. No difference was noted in strains recovered in the original and two subsequent blood cultures.

The combined therapy in this case was guided by the Schlichter procedure.[8] In this direct method the bacteriostatic activity of the patient's serum is determined by assay with the strain of microorganism originally isolated from the patient. Serial twofold dilutions of the patient's serum, taken at various intervals in the therapy schedule (particularly at the point of lowest blood concentration 5 minutes before the next injection), are made in broth. To these tubes are added a measured inoculum of the patient's bacteria. After 18-24 hours of incubation, the highest dilution of serum completely inhibiting growth is recorded. No definite "adequate" serum level can be set at this time, since this varies with the sensitivity of the causative organism, the type and severity of the infection, and the possible deterioration of the antibiotic *in vitro*. Schlichter, however, considers an effective serum level as that which inhibits growth in the first two tubes, i.e., a 1:2 dilution. In all specimens we assayed by this procedure serum levels varied between a 1:4 and 1:16 dilution. It was felt, therefore, that the optimal dosage had been achieved, and it was so maintained throughout the course of treatment.

Discussion

Three factors other than antibiotic therapy undoubtedly played major parts in the favorable outcome of this case. First, the early recognition of the nature of the illness by the family physician, and his prompt referral of the case to the hospital clinic. Second, the relatively good physical state of the patient during her course of illness. Third, the absence of congestive failure before, during or after the endocardial infection. The prognostic importance of these factors has been repeatedly emphasized.

On the other hand, this case lends weight to the argument that patients with rheumatic heart disease should be given prophylactic therapy before surgery. The token dose of penicillin given in this case does not approach the 8 million units per day recommended before rectal or genitourinary surgery.[2] It may be argued that a daily dose of 15 million units of penicillin was sufficient to effect a cure, without the addition of streptomycin. Unfortunately, no blood specimens were obtained during penicillin therapy alone, for Schlichter assay. However, the appearance of a petechial hemorrhage in the conjunctive after penicillin was started, and the fact that two positive blood cultures were obtained on penicillin alone, indicates that streptomycin was an essential adjunct to successful therapy.

As previously indicated, the Schlichter method for evaluating effective antibiotic therapy correlated well with the clinical course of this patient. We feel this type of planned therapy to be invaluable in the proper handling of such an infection.

Summary

1. A case of enterococcal endocarditis due to *Streptococcus fecalis* is presented.
2. The case was successfully treated with a combination of penicillin and streptomycin therapy, based on a demonstrated *in vitro* synergism.
3. The combined therapy was guided by determining the optimal effective antibacterial level of the blood serum, using the method of Schlichter.

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THE TREATMENT OF THE PATIENT WITH ADVANCED CANCER*

Medical Aspects—R. W. Frelick, M. D.[1]

The first prerequisite in handling a suspected patient of advanced cancer is to confirm the diagnosis of cancer before the patient is classified as ''terminal'' or ''incurable.'' Once this is determined an investigation should be made as to whether or not everything possible has been done for the patient. Recently forty patients were transferred from a state nursing home to the James Ewing Memorial Hospital in New York. On careful study it was determined that of this forty, ten did not have carcinoma, another ten had carcinoma that was amenable to treatment, and only four out of the forty were cases that could honestly be described as ''terminal'' or ''incurable.'' Once the patient has been classified, the first medication that is needed is the encouragement and friendly attitude of the physician. The physician should not shun or hesitate to visit patients for whom he realizes he can do very little.

In the relief of pain in the advanced cancer patient, the first medication should be the simpler non-narcotics. Many advantages can be gained by the use of aspirin alone, or in combination with codeine. Stronger drugs such as morphine, demoral, etc. should be withheld until they are definitely needed. A new drug, Dromeron, about which little is known, at present shows some promise in the relief of pain. Its action is longer than that of morphine and its undesirable side reactions appear to be less.

Surgical Procedures—P. D. Gordy, M. D.[2]

The use of surgery for the relief of intractable pain in the advanced cancer patient should be considered carefully, particularly as to the time at which such a procedure should be done, since there is little benefit in doing an extensive neurosurgical procedure on a patient whose life expectancy is such that he will not survive the post-operative period of discomfort. There are three commonly used methods available for the relief of pain.

The first, cordotomy, consists of section of the spinal thalamic tract. It is done bilaterally because of the crossing of the fibers, usually at a level of D-1 or D-2, which permits an area of analgesia to a level approximately even with the nipple line. The procedure is a rather extensive surgical one, and there are two common complications which can develop. The first is an atonic bladder, the second, leg weakness which develops either as a result of section or from edema of the pyramidal tracts. In selected patients, however, cordotomy is a very effective method of relieving pain.

The second method is that of lobotomy. This does not necessarily relieve the pain but changes the response of the patient to pain so that although pain may still be present, it is not appreciated nor does it carry the apparent discomfort that was present previously. About sixty per cent of patients can be expected to be relieved by a unilateral lobotomy. The remainder may require bilateral lobotomy for complete relief. With the latter, there is usually marked personality changes, but good results can be expected.

The third method is that of rhizotomy or section of selected nerve roots for the relief of pain. This procedure is particularly effective for relief of pain of the face and naso-pharynx, where the fifth and ninth thoracic and upper cervical nerve roots are sectioned.

Surgical Aspects—Leslie Whitney, M. D.[3]

In many advanced patients paliative resection of the primary lesion is an important factor in the relief of pain. Such a procedure might not prolong the patient's life, but often makes the patient more comfortable in the terminal stages. Many problems of handling advanced cancer patients are mechanical ones. In carcinoma of the head and neck there are frequent feeding problems and problems of breathing which may be solved by passing feeding tubes through the esophagus or by gastrostomy. Where there is tracheal obstruction, tracheotomy is frequently indicated. In carcinoma of the stomach one of the major problems is that of nutrition and the relief of vomiting. Often this has been benefited by the use of the Levin tube for aspiration of the stomach contents. In obstruction of the bowel, due to malignancy the use of the Levin tube or Miller-Abbott tube for decompression is a necessary form of treatment even though it upsets the patient's nutrition and electrolyte balance. In carcinoma of the urinary bladder, the relief of distention indicates an indwelling catheter. Tumor that has seeded itself upon the peritoneal surfaces often results in ascites which necessitates paracentesis. Like many other debilitating diseases the development of decubitous ulcers presents a serious problem to both medical and surgical departments. Modern management of these conditions is as important as any other therapy.

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*Symposium at the Delaware Hospital Tumor Clinic Conference, December 12, 1951.

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Psychiatric Problems—F. A. Freyhan, M. D.[4]

The psychiatric approach to cancer has frequently been overlooked. This is the first conference in recent years, that it has been mentioned. Psychiatrists should be accepted as a member of the working team in general hospitals rather than as an outsider or one assigned merely to the care of institutionalized patients. He then can be of great assistance in the care of patients through daily bedside contact. Great possible damage can, unthinkingly, be done to the patient by lack of care on the part of the staff discussing a patient's history within his hearing. The conference practice of having the patient wait outside of the door where he is sure to hear part of the discussion is a bad one, since the patient is so apt to misinterpret or misunderstand what was said.

One thousand cases of trans-orbital lobotomy have been done with good results. The procedure is fairly simple. It is done without the patient actually realizing that an operation had been performed. In performing a lobotomy an instrument is introduced through the conjunctiva and the cortical fibers are sectioned from below rather than from above, as was indicated in the procedure described by Dr. Gordy. This procedure also results in personality change, but the patient is frequently released from severe pain.

Shock therapy has also been used sometimes with patients with advanced carcinoma, particularly those who have a great deal of anxiety. Results have been fairly good. It appears to disassociate the patient from reality and to some extent lessens the response to pain.

CLINICPATHOLOGIC CASE REPORT

Vaughn R. Sturtevant, M. D.*
and
Park W. Huntington, Jr., M. D.**

Presentation of Case ***

The patient, a 62 year old white female was admitted to the Delaware Hospital complaining of swelling of the abdomen for six months. The patient first noted abdominal swelling six months previous to admission. She states that there was some weight loss associated with this. There had also been abdominal pain present in the right upper quadrant which was relieved by food and was sharp, stabbing in character. There was also pain around a right inguinal hernia incision. There was associated anorexia with episodes of diarrhea and constipation. She had noticed mucus in stools but no blood or tarry stools. The patient had chronic cough productive of white sputum that precipitated gagging, but there had been no nausea or vomiting.

Past Medical History: Patient states she had three previous attacks of pneumonia with pleurisy. There had been several admissions to this hospital for operative procedures. In 1942 patient had supravaginal hysterectomy; repair of an incisional ventral hernia was done in 1949. There was also a cholecystectomy and appendectomy at a former, earlier date. Patient had been admitted to this hospital one month previous to present admission at which time she was complaining of generalized abdominal pain. At that time examination revealed recurrent ventral abdominal hernias. Treatment was conservative at that time with bed rest and sedation and patient was discharged improved. Family history revealed the patient's father and three brothers had carcinoma. No history of diabetes. Patient's daughter was thought to have had tuberculosis.

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***Delaware Hospital Case No. 186011, presented at Staff Clinical Pathology Conference.

Systemic Review: Head-Ears: occasional earache in left ear and occasional tinnitus. Nodes: negative. Eyes: negative. Mouth and throat: dentures present. No dysphagia. Neck: no goiter; no stiffness. Chest: no pain. Patient has chronic cough. No hemoptysis. Cardiovascular system: ankles swell occasionally—worse at night. Shortness of breath on occasion with nervousness on exertion. No palpitation. No nocturnal dyspnea. G. I. System: as in history of past illness. G. U. System: No incontinence, occasional nocturia. No hesitency, frequency or urgency.

Physical Examination: Patient is an elderly white female sitting up in bed, in no acute distress. Temperature 98.8, pulse 104. Respirations 24. Blood pressure 170/110. Skin dry and wrinkled. Eyes: pupils dilated, react to light and accommodation. Fundi show A-V defect with increased sclerosis of arterioles. Conjunctivae appear normal. Sclerae are slightly icteric. Ears and nose: No discharge or perforation. Mouth: no pharyngeal injection. Small yellowish papules present on buccal mucose. Neck: supple. Trachea in midline. Thyroid not palpable. Chest: there is dullness and rales present bilaterally at the bases. Heart: there is slight enlargment on the left to percussion. Tachycardia present. Heart sound clear. No significant murmurs present. Abdomen: greatly distended. There is a large 12.0 Cm. scar in the upper right quadrant with multiple scars in the suprapubic area. There is a right inguinal hernia present. A fluid wave is palpated. There is no shifting dullness present. Liver and spleen are not palpated. There are no masses palpable. Extremities marked varicosities. No edema is present. Skin: multiple spider angiomata are present about the neck, back and right arm.

Course In Hospital: On 12/14/51 patient had paracentesis—3700 c.c. of straw-colored fluid was removed. During procedure patient began to vomit and it was discontinued. On 12/18 patient vomited approximately 30 c.c. of fresh blood and several hours later vomited 200 c.c. of clotted blood. This was followed by another bout of hemetemesis following which a transfusion of 500 c.c. of blood was given. On 12/19/51 while eating patient suddenly vomited 300 c.c. of clotted blood. Another transfusion of 500 c.c. of blood was given. On 12/20/51 patient noted to have become progressively unresponsive. On 12/23/51 patient reported comatose. On 12/24/51 patient's blood pressure dropped rapidly. Patient expired at 8:35 P.M. on 12/24/51.

Laboratory Studies: On 12/10/51 Chest x-ray: Accentuated linear markings suggesting possibility of some passive congestion. There is no evidence of definite cardiac pathology. There is no evidence of infectious change in the lung fields. On 12/23/51 EKG: patient has left ventricular hypertrophy but recent infarction has not occurred. The suspicion of previous posterior wall myocardial infarction is present. On 12/19/51 RBC 4.0; Hgb 86%; 13.4 gms.; Hematocrit 40%; WBC 5,600 with polys segs 45%; non segs 1%; lymphocytes 50%; Monocytes 2%; Eosinophiles 2%. On 12/21/51 blood sugar 100 mg.%, 12/24/51 blood sugar 179%; BUN 15 mg.% on 12/21/51; 12/24/51 plasma chlorides 620 mg.%; globulin 4.04; serum cholesterol 172 mg.%; on 12/7/51 Icterus index 17 units; on 12/24/51 10 units Vandenbergh—total 3.84 mg.%; direct 1.79 mg.%. On 12/10/51 Cephalin cholesterol flocculation: 24 hr.—2 plus; 48 hr.—2 plus. Thymol turb. 1 plus. On 12/10/51 Feces: benzedine test 1 plus; guaiac test—negative. Mazzini—negative. On 12/2/51 Urinalysis —Sp. Grav. 1.019; Reaction—alkaline; albumin, sugar and acetone—negative; WBC 2-3/hpf; Many squamous epithelial cells and few mucous threads. On 12/13/51 Negative fore bile; contains normal amounts of urobilinogen. Prothrombin 52%.

Differential Diagnosis

Dr. Vaughn R. Sturtevant: This is a 62 year old white female with a past history of recurrent pneumonia and pleurisy and who had had removed some years previously her uterus, gall bladder, and appendix.

Six months prior to the admission which occasions this discussion, and about seven months prior to her demise, she had the onset of her chief complaint: swelling of the abdomen, which was subsequently found due to ascites. One month before this admission she had been in the hospital with generalized abdominal pain and a ventral hernia which was not repaired. Evidently she was thought not to be a good candidate for surgery at that time, in contrast to two years before then.

On admission she appeared with her chief complaint and with right upper quadrant pain, weight loss, anorexia, diarrhea, and constipation—symptoms referable to the G. I. tract, but which may be mere accompaniments of ascites. Also at this time she had been having shortness of breath, ankle swelling, and a hypertension of 170/110. In connection with these findings, a chest film a few days after admission showed passive congestion of the lungs, and on physical examination rales were heard bilaterally at the bases. However, perhaps the most significant findings on admission were the ascites, multiple spider angiomata, and scleral icterus later confirmed by icterus index of 17.

In the next few days in the hospital, the patient had several liver function tests: relatively normal cephalin and thymol tests, normal amounts of urine urobilinogen, slightly diminished prothrombin time, no bile in the urine.

A paracentesis done, but not completed, relieved the patient of 3700 c.c. of straw colored fluid. This gives us the impression that this patient had a fairly large amount of fluid in her abdominal cavity. It would be useful to know whether or not a spleen could be felt at the end of this procedure.

The most important feature of the course of this patient's hospital course was the repeated hematemesis repaired by transfusion. I judge that this repair was adequate since no mention is made of shock and a blood count done the day after the first hematemesis showed a normal amount of hemoglobin. The next most important feature of this patient's course was the gradual lapse into coma, again without preceding shock and without neurological localizing symptoms apparently. An EKG done on the third day, after she was becoming progressively unresponsive showed no recent infarction. On the day of the patient's expiration she had an elevated globulin (and probably a diminished albumin), and her Vandenbergh then was 3.84/1.79. Two days before this, in spite of previous G. I. bleeding, her BUN was only 15, a further suggestion of possible liver disease. The elevated blood sugar on the day of expiration is inconsistent with the normal one two days before; this may have been a consequence of a CVA or, more likely, she had had intravenous glucose a short while before the blood sugar specimen was drawn.

Summary

In summary, this is a patient with a short history of considerable ascities and minimal physical and laboratory signs of liver disease who suffered sudden hematemesis and gradually lapsed into a coma and expired. In addition she had hypertension, rales, shortness of breath, and an x-ray which showed chronic passive congestion of the lungs. Her previous operations, the normal urine and BUN, relatively normal blood picture, and absence of specific neurological findings tend to rule out diagnostic possibilities in most of the symptoms. What pathologic entities then could have produced this picture? We are confined largely to the cardiovascular and gastrointestinal system.

The hypertension, chest film, and stigmata of congestive heart failure present force one to make the diagnosis of hypertensive cardiovascular disease, but one is hesitant to give full credit to the failing myocardium for her congestive signs and symptoms inasmuch as almost any disorder that could produce severe ascites might produce some pulmonary congestive signs and symptoms as well, and I do believe she has an extra cardiac cause for her ascites. The possibility of a cerebral vascular accident as a cause of death should be mentioned here. The patient's gradual unresponsiveness without localizing neurological signs is against this. Cardiac cirrhosis might be considered also, but this history is too brief for this, the cardiac symptoms are too minimal. This is rarely, if ever, a cause of G. I. bleeding.

A common cause of ascites, liver disease, and G. I. hemorrhage is Laennec's cirrhosis with esophageal or gastric varicosities. The quality and quantity of the ascites, the type of abdominal pain, the spider angiomata, the laboratory signs of minimal hepatic dysfunction and a demise characteristic of Laennec's cirrhosis. Ulcers of the upper G. I. tract are more common in patients with Laennec's cirrhosis than they are in the public at large, and this must be seriously considered as a cause of the hematemesis. Of course such an ulcer alone would not explain the liver disease. Against the diagnosis of Laennec's cirrhosis is the hypertension (a finding fairly uncommon in liver disease) and the absence of a history of alcoholism which is not essential but would be helpful, since this would be a good background for the existence of a hepatoma or a severe infection. These possibilities demand mention, although there is nothing specific to suggest either of them. On the whole, the evidence for a diagnosis of Laennec's cirrhosis is irresistable.

However, certain other possibilities must be ruled out. Gastric carcinoma or other gastric neoplasms would not be likely to cause hepatic dysfunction sufficient to produce jaundice. Of course the possibility of carcinomatosis as a cause of ascites must not be forgotten, but there is little other evidence to confirm this and the quality of the fluid is against it. Furthermore, the mode of expiration is most consistent with hepatic coma rather than neoplasm. Other causes of hepatic disease and ascities such as portal vein thrombosis should be considered. Portal vein thrombosis might be expected to produce this picture of massive ascites with very little edema of the legs, and this disease tends to occur most often in patients who have had numerous abdominal operations. Chiari's disease likewise, is a rare pathologic picture which simulates Laennec's Cirrhosis. Finally tuberculosis with tuberculous peritonitis could be responsibile for the ascites, but probably not the jaundice and the nature of the demise. It would go well, however, with the observation that the patient showed shifting dullness (? due to adhesions) and with the hint of a family history of tuberculosis.

Therefore a cirrhotic liver was probably found at autopsy, but the absence of a bleeding point in the G. I. tract would not be unusual since varicose veins tend to collapse post mortem.

Clinical Diagnosis

1. Hypertensive Cardiovascular Disease.
2. Laennec's Cirrhosis — death due to hepatic coma.

Pathological Discussion

Dr. Park W. Huntington: At autopsy the heart was extremely flabby in consistency, showing degeneration of the myocardium. The abdominal cavity contained 1.5 liters of ascitic fluid and numerous adhesions. The uterus and gall bladder were absent. The liver was slightly small in size, and a diffusely yellow-gray color. There was a fine fibrotic nodularity throughout which was present in all cut sections. In the distal one-third of the esophagus there were numerous dilated, tortuous veins, some showing punctate areas of rupture through the mucosal surface of the esophagus.

Microscopic sections of the liver showed a lobular distortion of the architecture by fibrous tissue, typical of portal cirrhosis.

Pathological Diagnosis

1. *Myocardial failure*
2. *Laennec's cirrhosis (Portal)*

CLINICAL EVALUATION OF A CETYLPYRIDINIUM CHLORIDE COUGH MIXTURE

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The common cold, with its associated symptoms, is a continuing problem of medical science as well as of industry because of the estimated loss of one hundred million work days, or in excess of one billion dollars each year in the United States.[1, 2] Experimental medicine has been and is investigating the etiological agent or agents, but to date, although a multitude of secondary bacterial invaders have been isolated, the underlying primary cause—whether bacteria or virus—has yet to be identified. Since no one procedure is specific for the prevention or cure of a

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cold, the search for relief must lie in symptomatic treatment.

Cough is one of the most frequent symptoms for which the "cold" patient seeks medical attention. The function of a cough is to rid the body of irritants originating in the respiratory system; be they accumulated mucus, inflammatory exudates, extravasated blood, or foreign bodies. The multiplicity of excitants which may elicit cough should be recognized. Pathological changes in any part of the upper or lower respiratory tree wether of a mechanical, toxic, infectious, allergic or neoplastic origin, may provoke cough. Therefore, for the intelligent and efficient treatment, the etiological agent must be determined and appropriate measures instituted.

The cough center, responsible for voluntary coughing, lies in the medulla oblongata near the respiratory center, and as such is activated from the higher cerebral centers. The involuntary or spontaneous cough, which is more commonly encountered clinically, is however the end result of a reflex arc. The afferent impulses originate in the nerve endings of the superior or recurrent laryngeal nerves, the vagal endings in the lung, or the pleural nerves, the most sensitive endings lying in the mucosa of the larynx and the carina of the trachea. Additional sites of cough origin are the throat, palate, and posterior nasopharynx. These impulses proceed via the afferent fibers to the tractus solitarius where the efferent impulses are discharged to all the thoracic and abdominal muscles of respiration. The cough reflex consists of a brief inspiration, closure of the glottis, and a forceful expiration which, with the glottis closed, builds up intrapulmonary pressure. Then, a sudden opening of the glottis may expel any offending material from the air passage.

It is reasonable to assume that the forces of coughing are capable of evacuating most inflammatory products or foreign bodies from the respiratory tract. In the case of fully developed bronchopulmonary infections such as pneumonia, tuberculosis, bronchiectasis, and lung abscess with copious exudate, one would expect a successful drainage under the effect of a cough; in essence, a productive cough, if no mechanical obstruction is present and both structure and mucosa of the bronchial tree are intact. There are a number of instances, however, when a cough is absolutely or relatively unproductive in proportion to the effort expended. This is a result of excitation of the sensory nerve endings of the cough reflex by materials or structures which it is impossible to dislodge. Useless or inadequate cough (tussal insufficiency) may be brought about by any of the following situations:

1. Upper respiratory infections such as pharyngitis, laryngitis, or tracheitis, or in early bronchial or pulmonary infections where the exudate is insufficient or too tenacious for evacuation.

2. Intrathoracic neoplasm such as bronchogenic carcinoma, lymphoma, teratoma, or metastatic malignancy or masses pressing on the respiratory system from without, such as esophageal diverticulum, aortic aneurysm, or substernal goiter.

3. Obstruction or irritation of the respiratory passages from such things as foreign body, irritant gases or dusts, pneumoconiosis, or post-nasal drip.

4. Psychogenic as in psychoneurosis or neurosis, or neurogenic as in injury to the recurrent laryngeal nerve.

Severe coughing associated with tussal insufficiency is undersirable because of the many adverse physiological effects which result. McCann and his associates[3] have demonstrated that during severe paroxysms of coughing the intrapulmonary pressure rises to 200 mm. of mercury (270 cm. of water) above atmospheric pressure. This excessive pressure may cause rupture of weakened elastic fibers, with subsequent fibrosis and emphysema. Fluoroscopic examinations of the chest during the Valsalva maneuver (forced attempt at expiration with the glottis closed) have shown that the increased intrathoracic pressure results in a diminished cardiac output since the venous return to the heart from the periphery is impeded, as is the ingress of blood into the lung parenchyma. Pulmonary hemorrhage, spontaneous pneumothorax, hernial protrusion, anorexia, vomiting, headache, fractured ribs, and mediastinal or subcutaneous emphysema may be precipitated by strenuous, protracted, unproductive cough.

Therefore, the treatment of a cough should be primarily aimed at the removal of the stimulating factor. If this is not possible, the aim should be to soothe the mucous membrances and obtund the nervous transfer of impulses which initiate the cough reflex.

The central suppressive action of codeine and similar drugs is familiar to all, so that the experimental study conducted here was limited essentially to variability in the expectorant medications employed.

DESCRIPTION OF PRESENT STUDY

The purpose of the present study has been to ascertain the influence of a relatively new chemical, Cetylpyridinium Chloride, on the symptom of cough in a group of clinical ambulatory patients, and to draw conclusion as to its relative effectiveness.

A preliminary review was made of the case histories of 1,311 patients. On the basis of these observations a rigidly controlled investigation was conducted with five cough mixtures with only one containing Cetylpyridinium Chloride and one commonly prescribed expectorant containing a narcotic, on a representative cross section of people of all ages, incomes, and occupations. The cough mixtures which seemed most effective in the preliminary study were included in a second investigation during the past winter. In the second investigation on 682 patients with an age range from five months to 84 years, the following observations were noted: (a) onset of relief; (b) degree of relief; (c) duration of cough; (d) occurrence of side-effects; (e) complications. A tabulation of the findings is given in Chart I.

Every possible precaution was taken so that neither the attending physician nor the patient were cognizant of the identity of the preparation being dispensed. All syrups were rebottled by our laboratory in standard 4 ounce prescription bottles which carried plain direction labels and only alphabetical identification (A to F inclusive). To insure a fair distribution of all six products under observation, in so far as possible, they were dispensed in constant alphabetical rotation, i.e., the first patient received A, the next B, the next C, and so on. All patients included in this clinic were suffering from the common cold with an accompanying cough.

The subjective effects of the various products tested were described to the attending physician by the patient and recorded by the physician.

The data on side effects in Chart I is particularly interesting because of the tremendous variations in the products tested. In some instances, though the degree of relief was good, patients actually refused to continue to use a prescribed medication because of the unpleasant gastric symptoms elicited by its administration. The high incidence of nausea from some of the products can probably be correlated with certain of the medicaments contained therein. It is interesting to note that actual vomiting occurred only with Cough Syrup F, which contained codeine.

Cough Syrup A, which was the only mixture containing Cetylpyridinium Chloride and which had been outstanding in the initial study, again gave the best all around results and the most beneficial therapeutic effects in the treatment of coughs due to the common cold. It was well tolerated by the patients of all ages and was free from any undesirable side effects.

The active ingredients of this product are: ammonium chloride; sodium citrate; glycerin; Cetylpyridinium Chloride; menthol, eucalyptus, camphor, and other aromatics. The principal active ingredients of this product are, therefore, well-known expectorants in a palatable, pharmaceutically elegant vehicle. Cetylpyridinium Chloride, a quarternary ammonium salt, also known as Cetamium, manufactured by the Vick Chemical Company and contained in Vicks Cough Syrup, has the formula $C_{21}H_{38}NCl$. According to the N.N.R., it is best known for its exceptionally high bactericidal activity with negligible toxicity to tissues. Equally important, but less well known, are its surface tension lowering properties which in solution should permit greater spreading and penetrating action.

It therefore seems logical to assume that

CHART I

Cough Syrup	A	B	C	D	E	F
Number of Cases	113	110	113	121	115	110
Onset of Relief (minutes)*	59	87	102	105	109	83
Degree of Relief (complete—100%); (partial—50%; none—0)	98%	85%	87%	80%	79%	86%
Duration of Cough (days) after medic. started	4.6	6.8	6.6	6.9	7.2	6.7
Side Effects						
(a) Nausea	0	5%	15%	54%	65%	15%
(b) Vomiting	0	0	0	0	0	5%
(c) Allergic Reaction	0	0	0	2%	0	0
(d) Other (cramps, abdominal distress, etc.)	0	0	1%	0	0	0

Total Cases—682

*Where coughs were due to a "dry spot" or other local irritations in the throat, in many cases relief was almost immediate. This is not apparent from the figures shown since these are mathematical averages of all patients on a particular product.

more surface area is thus made accessible to the demulcent and emollient base, accounting for greater local relief to throat tissues where irritation or inflammation may be present.

In view of its clinically determined superiority, fluoroscopic studies were conducted on 25 random cases using Cough Syrup A—barium mixtures. This investigation disclosed no interference with gastric activity or normal stomach emptying time. This is significant because of the tendency of many syrupy expectorant mixtures to cause nausea, particularly in children.

In summary then, once the origin of a cough has been discovered, all efforts to make it productive if non-productive, useful if useless, safe if harmful, must be made. In some cases this will best be accomplished by suppressive medication such as codeine or allied compounds; in other cases, secretory medications such as the Cetylpyridinium Chloride mixture tested clinically in this study will be indicated. While there is some indication that the present trend in the use of narcotic expectorant mixtures is downward and they are not being employed as much as formerly, cough Syrup A containing Cetylpyridinium Chloride could serve as a suitable expectorant vehicle for the addition of codeine or other narcotics where such medication is indicated, since it is both well tolerated and palatable.

Conclusions

1. For the effective treatment of a cough it is necessary to determine its cause, its origin, and its type. Appropriate treatment can then be prescribed for it.

2. In a clinical study of 682 ambulatory patients suffering from all types of coughs due to colds, expectorant and suppressive cough preparations were used and clinical criteria established for their evaluation.

3. Cough Syrup A (Vicks) was considered the best of the preparations tested in terms of all around desirability from both objective and subjective points of view. The principal difference between this and other cough syrups is a combination of Cetylpyridinium Chloride with established expectorant drugs of proven value.

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3. McCann, W. S., et al.: Tussive Syncope: Observations on Disease formerly called Laryngeal Epilepsy, with report of Two Cases. Arch. Int. Med. 84: 845, 1949.
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Woman's Auxiliary: M. S. of D.

The Woman's Auxiliary to the Medical Society of Delaware has all arrangements made for a booth at the Harrington Fair, from July 27th through August 1st.

The purpose of the booth is educational—to acquaint the public with the need for nurses in the hospitals in Delaware, and to present to young women the advantages of a career in nursing.

The Delaware State Board of Health is most graciously lending the Auxiliary one of their booths for this exhibit, for which the Auxiliary is very appreciative.

The six hospital nurses training schools of the state will each take one day to present

Concluded on Page 171

Editorials

DELAWARE STATE MEDICAL JOURNAL

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Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index Medicus, published by the American Medical Association, Chicago.

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VOL. 25 JULY, 1953 No. 7

IS THE UNIONIZATION OF NURSES IN THE OFFING?

The editor of the Journal of the *Tennessee State Medical Association* writes a thought-provoking Editorial, under the above heading in his June issue. The thought is one that has been in our own mind for some time, due to various news releases, some of which emanated from the nurses own organizations. In 1948 the Delaware State Nurses Organization officially repudiated the idea of becoming Unionist and reaffirmed their intentions of remaining strictly professionals. We hope they will remain steadfastly devoted to these ideals. But will they—can they—hold on when their own American Nurses' Association is leading in the opposite direction?

The disturbing story in the Tennessee Editorial follows:

In March of this year Miss Shirley Titus,* Chairman of the Committee on Employment Conditions of Registered Professional Nurses of the American Nurses' Association, appeared before the Committee on Education and Labor, of the House of Representatives in Washington. As a representative of 177,000 registered nurses in the Country, Miss Titus plead for the elimination of the exemption of non-profit hospitals from collective bargaining under the Labor Management Relations Act of 1947.

The burden of Miss Titus' complaint before the Committee was somewhat as follows. The average salary for general duty nurses throughout the Country, ranging from $215 to $220 per month for a 44 hour week, has not kept pace with the rising costs of living as have the wages of other skilled workers. She pointed out that at the annual convention of the American Nurses Association in 1946, its House of Delegates went on record as in favor of State Nurses' Associations developing what they call "economic security programs." This program Miss Titus frankly says, established the State Association as the agency for collective bargaining with the hospitals of the respective state. She complains that the nurses were just getting underway with this program, and with some success, when the Labor-Management Relations Act of 1947 exempted non-profit hospitals from the obligation to bargain collectively with their employees. (The representative of the nursing profession pointed out that 80 per cent of the nation's 335,000 practicing nurses are employed in the 3,227 non-profit hospitals of the Country.) In 1950 the "no-strike" policy was adopted as is shown in the following statement: . . . "the American

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*From Transcript of Hearings Before the Committee on Education and Labor, House of Representatives, Washington, D. C., Vol. 13, March 5, 1953.

Nurses' Association, in conducting its Economic Security Program reaffirms professional nurses' voluntary relinquishment of the exercise of the right to strike and of the use of any other measure wherever they may be inconsistent with the professional nurses' responsibilities to patient; . . .''

In her request that non-profit hospitals be forced into collective bargaining with their employees, Miss Titus pointed out that the poor economic status of the nursing profession was one of the major reasons why fewer and fewer women were enrolling in schools of nursing. She said, ''The registered nurses of this country today are keenly anxious to have a voice in the determination of their employment conditions, not only because of self-interest and not only to stop exploitation of registered nurses by the hospitals, but more than that the nursing profession is concerned about the increasing shortage of nurses.''

From the questions which members of the Committee of the House posed to Miss Titus, it is quite obvious that they were taken aback by Miss Titus' demands. I am quite sure any physician would feel similarly. We have always thought of the nurses as offering us professional assistance with some degree of idealism mixed with the practical aspects of making a living. Miss Titus said, ''I would just like to say this, that I can predict that unless there is some assistance given to professional nurses in this matter of collective bargaining, if this exemption of non-profit hospitals continues, I think we will have to accept the fact that the nurses will be compelled to strike. That is what is bothering us. Other employees are able to threaten strikes and use it very skillfully, and sometimes do it.'' . . . ''It is to avoid strikes that we are asking for this exemption to be eliminated. As it is now, the nurses have no way of improving their economic lot, and their economic lot is not good. Even though we recognize the cost of hospital care is very high today and the public is feeling the strain of it, the nurses cannot understand why they must continue to make a very liberal contribution, financially, to the hospital by taking low salaries in order to keep hospitals moving. We feel that the nurses should have higher salaries and improved employment conditions, . . .''

If this statement truly reflects the feeling of the nursing profession, then your editor feels it has lost the right to speak of itself as a profession. It then clearly represents a trend toward a nurses' union.

Your editor does not expect every nurse to be a Florence Nightingale in ideals, nor does he expect nurses in 1953 to labor for the love of it without thought of remuneration and what it can buy in terms of living. But he does hope that the nurse will stay a cut above labor insofar as a free market for her skills is concerned and not go in for a closed shop, which will be the eventual outcome if the philosophy expressed by Miss Titus is pressed to its logical conclusion. The free labor market permits the nurse to work where she can do the best in terms of money, working conditions and other emoluments. The psychologic reaction and viewpoint which goes hand in hand with the closed shop would be dreadful when applied to the sick. The thought of the perversion of human interest, the desire to serve and to excel by the psychology of ''feather-bedding'' and related practices of labor, when applied to nursing, is appalling. We can readily visualize under collective bargaining a limit to the number of hypodermic injections, other medications and duties given or done per work period. This is not ridiculous and is certain to follow as the labor-leaders of the nurses' union ''feel their oats'' and wish to earn for themselves a good salary and a home in the country.

We are surely living in changing times and apparently just about anything can happen.

OUR REGRETS

The front cover of our May, 1953 issue should have carried the caption "St. Francis Hospital Number." This was inadvertently omitted in the final makeup of that issue.

In our June, 1953 issue the discussion by Dr. Michael L. Centrella, of Wilmington, of the paper by Dr. Anthony Sindoni, Jr., was omitted, due to a misunderstanding on the part of the stereotypist who recorded our transactions. Dr. Centrella's discussion will appear in the author's reprint.

While this editor was not responsible for either of these items, he is embarrassed by their happening and sincerely hopes they will never occur again. Our regrets.

MISCELLANEOUS

Delaware Doctors Honored

At the commencement exercises of the University of Delaware on June 14, 1953 four honorary degrees were awarded, one being the degree of Doctor of Public Service to Dr. Victor Duke Washburn. He was presented to President Perkins by Dean Squire, who read the following citation:

Dr. Washburn, a New Yorker by birth and a Delawarean by choice, has been a stalwart and energetic leader in medicine, education and public administration throughout his long career in Delaware. He has served the city of Wilmington as President of the Board of Education, President of the Department of Public Safety, President of the Board of Health, and Health Commissioner. In addition to his municipal duties he has been State Director of the Selective Service System and an active member of the Delaware National Guard from which he was retired in 1946 with the rank of brigadier general His eminence in the medical profession is attested by the offices which he now holds as President of the Medical Society of Delaware and Medical Director of the Memorial Hospital.

Dr. Washburn received in 1951 the Medal of the American Cancer Society "in recognition of his important contributions in the control of cancer."

A courageous and resourceful public servant, he has served his city and state well.

A citation for leadership in aid to alcoholics was presented to Dr. George H. Gehrmann, medical director of the DuPont Company, by the Malvern (Pa.) Institute for Alcoholism and Psychiatric Studies.

This first award by the institute is in recognition of "the exemplary leadership and courage he has displayed in furthering the treatment, understanding, and welfare of the alcoholic patient and for many years of outstanding service in this cause."

Dr. Gehrmann has played a pioneering role in work with alcoholics in industry since becoming head of the company's medical division in 1926. His support of Alcoholics Anonymous has aided the growth of such groups throughout the country.

Dr. C. Nelson Davis, founder and director of the Malvern Institute, emphasized in his announcement of the award that Dr. Gehrmann had pioneered in industrial medicine as well as in combating alcoholism. The director also pointed out the "dramatic role" played by the DuPont official who "was risking his professional career in advocating" such programs in earlier days.

At the A. M. A. Convention in New York City on June 1, 1953, the Editor of The Journal was given a Citation of Appreciation for 25 or more years of service to medical organizations and the medical profession, at the annual meeting of the Medical Society Executor's Conference. This MSEC award was given to Dr. Bird because the issue of December, 1952 completed the 37th year of his editorship here in Delaware. For the past two years Dr. Bird has been the senior editor in the group of State Medical Journal Editors in this country. The award to Dr. Bird was one of six made at the MSEC meeting.

Woman's Auxiliary: M. S. of D.

Continued from Page 168

an exhibit, and will have a representative in the booth to work with the Auxiliary members. The following is their schedule:

Monday—Delaware Hospital
Tuesday—Beebe Hospital
Wednesday—Memorial Hospital
Thursday—Milford Memorial Hospital
Friday—St. Francis Hospital
Saturday—Wilmington General Hospital

There will be movies on nursing, dolls dressed as student nurses, and the exhibit planned by each hospital for their respective days. Literature from each hospital will be available at all times to anyone interested in it.

Mrs. Sylvester Rennie, Wilmington, Chairman, Mrs. Robert Dickey, Laurel, Mrs. Harold Laggner, Smyrna, Mrs. Roger Murray, Wilmington, and Mrs. Douglas Gay, Hockessin make up the Fair committee.

D. A. M.

The library of the Delaware Academy of Medicine will be closed from July 16, 1953 to July 31, 1953.

* * *

The Library of the Delaware Academy of Medicine will appreciate an early return of the following books:

Davidson, Smithers & Tubbs: The Diagnosis and Treatment of Intrathoracic New Growth.

Duke-Elder: Textbook of Ophthalmology, vol. I.

Grant & Estes: Spatial Vector Electrocardiography.

Sunderman & Berner: Normal Value in Clinical Medicine.

Journal of the American Medical Association: vol. 86 (Jan.-June 1926)—bound, green cloth; vol. 141 (Sept.-Dec. 1949)—bound, green cloth.

Circulation: vol. 5 No. 1 (January 1952).

BOOK REVIEWS

THE CONCEPTION OF DISEASE: ITS HISTORY, ITS VERSIONS AND ITS NATURE. By Walter Riese, M. D. Pp. 120, Cloth, Price, $3.75. New York: Philosophical Library, 1953.

The author traces the various concepts of disease typified by each stage of civilization. Medical thought from the most primitive and crudest magic to the most refined and elaborate concept of modern psychology is analyzed.

It is a significant feature of primitive or magic medicine that supernatural diagnosis, prognosis, and therapy, whether they rest on gods, spirits or demons, do not include the individual himself as the source of medical thought and action.

Today the medical investigation is on the broadest scale, listing origin, age, marital state and profession of the patient. Also included is the psycho-physical development, school record, home life, work record, special interests, social activities, and views on human life and nature.

Medical historians and philosophically-minded physicians will find this little book thought-provoking concerning "disease" and the evolution of the methods developed by the physician in diagnosing the disturbed mechanics and dynamics of life processes. The material is well presented.

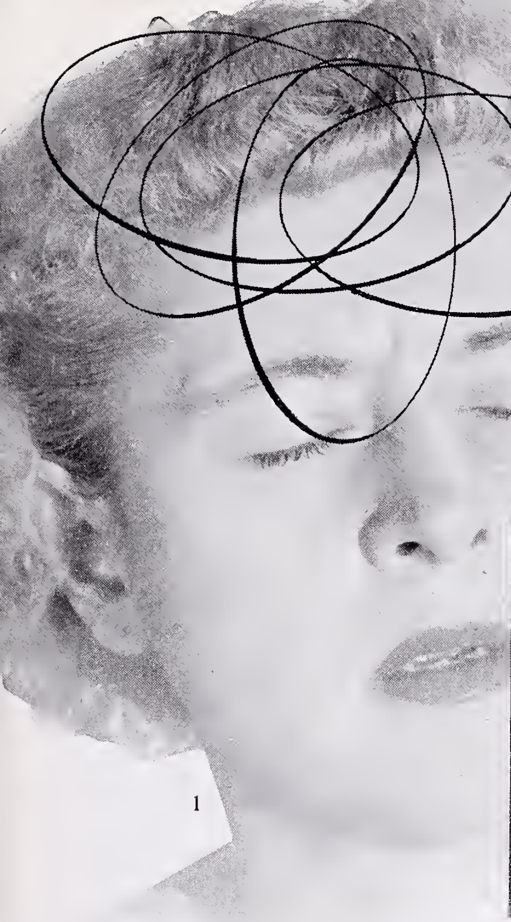
A subject index and a number of references with comments by the author are given in the back of the book.

OPERATING ROOM TECHNIC. By St. Mary's Hospital, Rochester, Minnesota. Fourth Edition. Illustrated. Pp. 345, Cloth. Price, $6.50. Philadelphia: W. B. Saunders Company, 1952.

This is a very useful outline of operating room technic as it is carried out at St. Mary's Hospital. It is well outlined and well illustrated for teaching nurses and assistants in the operating room.

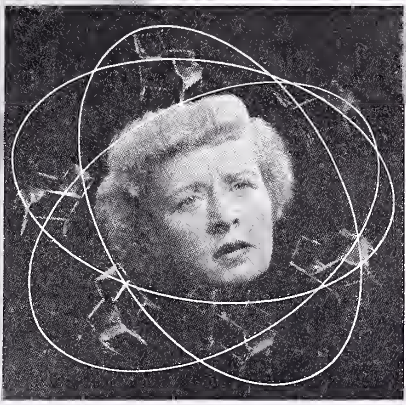
NEW MEMBERS—SINCE MAY 31, 1952

Name	Address	Specialty	Tel.	School	Licen.	Joined
Brooks, Clifton R.	Newark, Del.	Pd*	2594	Wisc., 1946	1952	10/52
Davis, Walter D.	828 West St.	P	4-0883	Chicago, 1943	1952	12/52
Dorph, Marvin H.	Med. Arts Bldg.	I	4-7559	Temple, 1948	1949	5/53
Gallaher, Phyllis D.	1009 Park Place	ObG	4-3162	Woman's, 1928	1952	10/52
Gallaher, William T.	1103 Delaware Ave.	ObG	6-6684	Penn., 1942	1952	12/52
Gledhill, Emerson Y.	Memorial Hospital	S*(Ca)	6-3351	Columbia, 1937	1952	9/52
Hainlen, E. Willis	B'wine Sanat.	T*	3-8893	McGill, 1924	1952	2/53
Hogshead, Thomas H.	Newark, Del.	In*	Nk. 7111	Howard, 1937	1953	2/53
Kaminsky, Aaron A.	Nemours Bldg.	In*(P)	4-5121	Md., 1935	1953	4/53
Karpinski, Charles M.	1501B N. Broom St.	S	4-8816	Yale, 1947	1951	12/52
Koether, Paul C.	New Castle, Del.		93-7183	New York, 1950	1952	12/52
Lang, Leonard P.	1009 Park Place	I	2-2286	Jeff., 1939	1952	10/52
Moore, Walter W.	Med. Arts Bldg.	S	4-3570	Jeff., 1947	1948	12/52
Olmedo, Livio	606 W. 10th St.	NS*	4-8835	Mich., 1949	1952	12/52
Panariello, Dominic A.	1404 W. 8 St.		4-1606	Marquette, 1949	1950	2/53
Rosenblum, Herman	1015 Park Place	Pd.	6-6454	Tenn., 1944	1953	3/53
Wagner, Charles W.	New Castle, Del.		93-4875	Va., 1950	1951	1/53
Walker, Charles, Jr.	1300 N. Franklin St.	I	2-8889	Hahn., 1945	1946	10/52



1

1. *Dizziness . . . movement is within the head.*
2. *Objective vertigo . . . the environment is in motion.*
3. *Subjective vertigo . . . the patient himself moves in space.*



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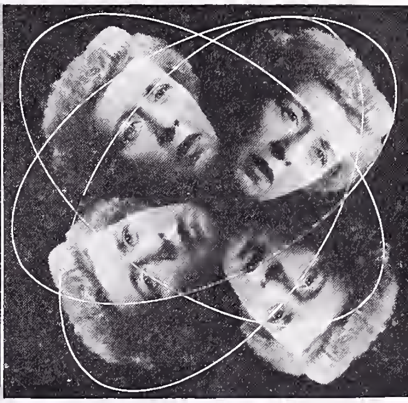

3

TYPES OF VERTIGO:

Their symptomatic relief with Dramamine®

The disagreeable sensations of dizziness which physicians are frequently required to explain to patients have been described by Simonton[1] as varying from a slight sensation of confusion to severe vertigo.

While dizziness or giddiness is classified as a sensation of unsteadiness with a feeling of movement within the head, in vertigo the environment seems to spin (objective vertigo) or the body to revolve in space (subjective vertigo). Labyrinthine disturbances are likely to cause a sensation of rotation. Among the more common causes of dizziness or vertigo, this author lists: Damage to the vestibular nuclei or tracts in the central nervous system, involvement of the vestibular end organs by disease of the ear, Ménière's disease, toxicity of drugs, ocular vertigo from sudden diplopia, visual field defects, looking down from heights and motion sickness due to hyperactive labyrinthine reaction from riding in vehicles.

Dramamine (brand of dimenhydrinate) has proved effective in treating many of these disturbances. The indications for which Dramamine is now Council accepted include: Motion sickness, the nausea and vomiting associated with pregnancy, certain drugs, electroshock therapy and narcotization; vestibular dysfunction associated with streptomycin therapy; the vertigo of Ménière's syndrome, hypertensive disease and that following fenestration procedures, labyrinthitis and radiation sickness.

---

[1] Simonton, K. M.: The Symptom of Dizziness, Arizona Med. *6*:28 (Sept.) 1949.

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1. Reich, W. J. et al. (1951, A Recent Advance in Estrogenic Therapy. I. Amer. J. Obst. & Gynec., 62:427, August. **2.** Perloff, W. H. (1951), Treatment of the Menopause. II. Amer. J. Obst. & Gynec., 61:670, March. **3.** Reich, W. J. et al. (1952), A Recent Advance in Estrogenic Therapy. II. Amer. J. Obst. & Gynec., 64:174, July.

1-1878

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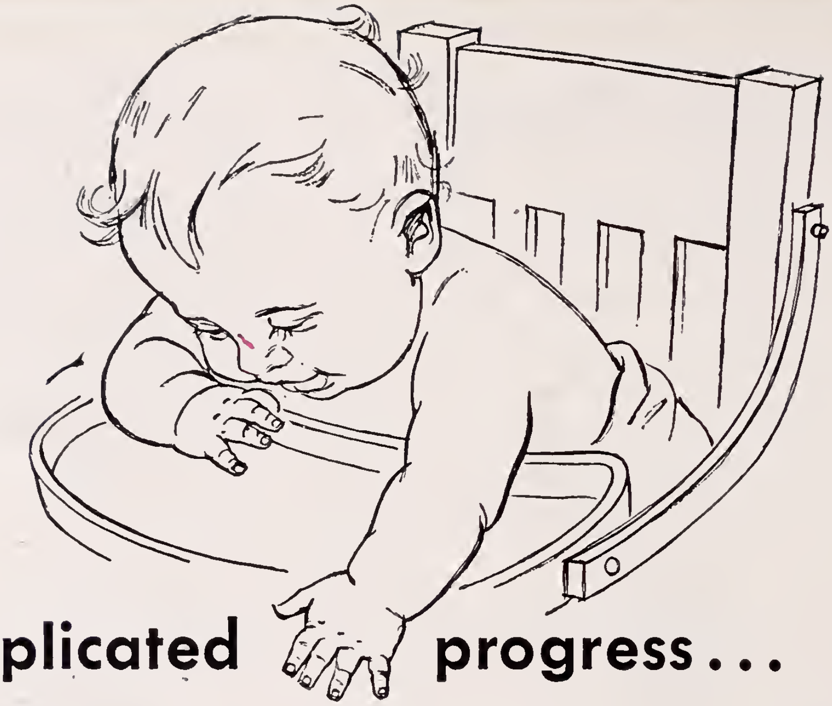

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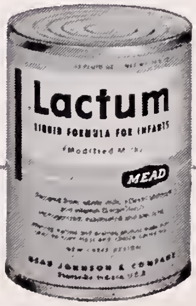

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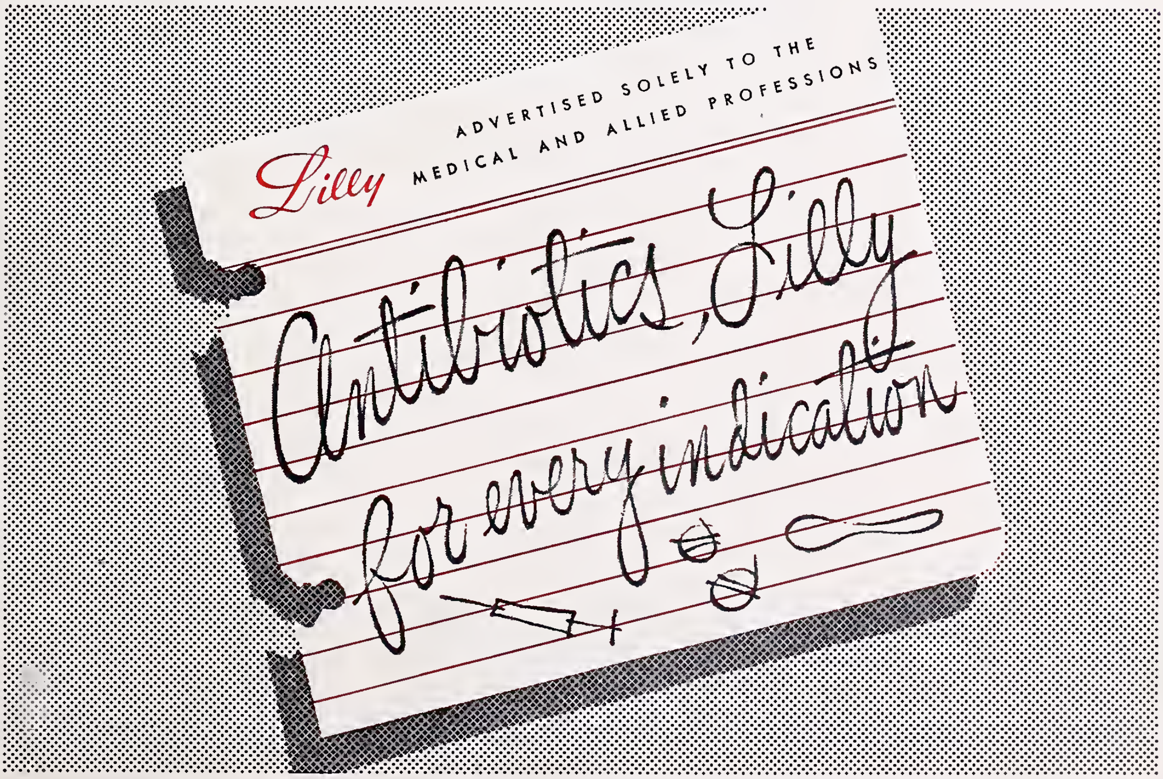
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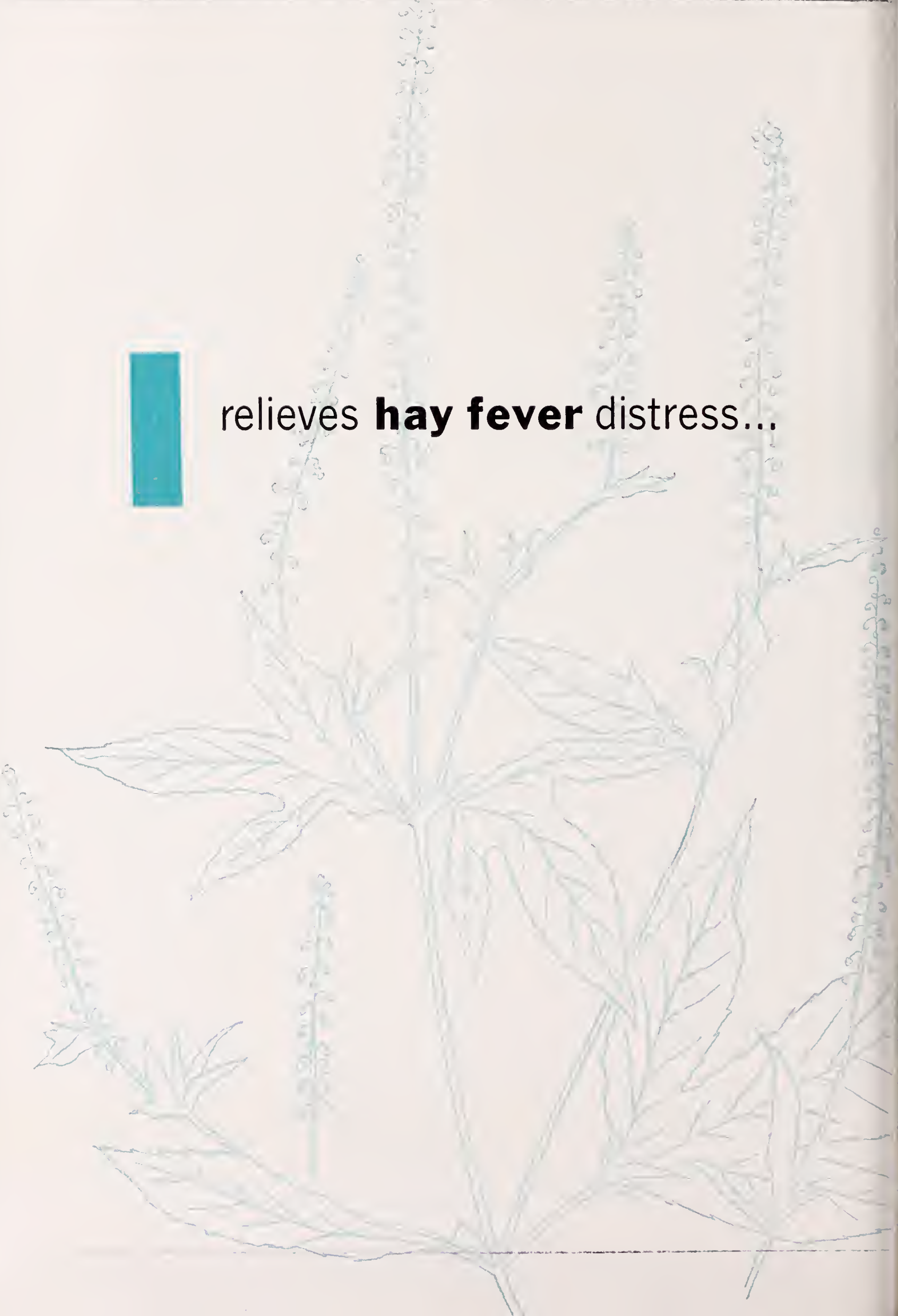
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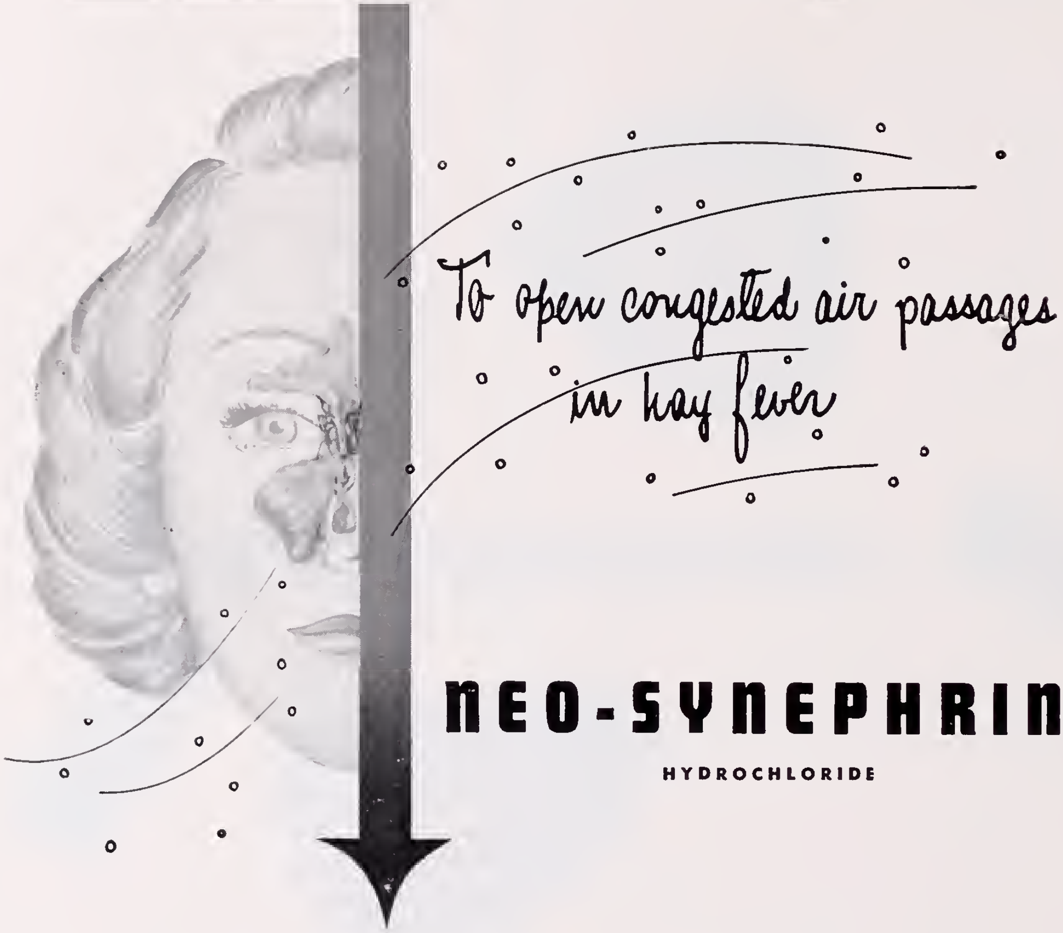
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1. Von Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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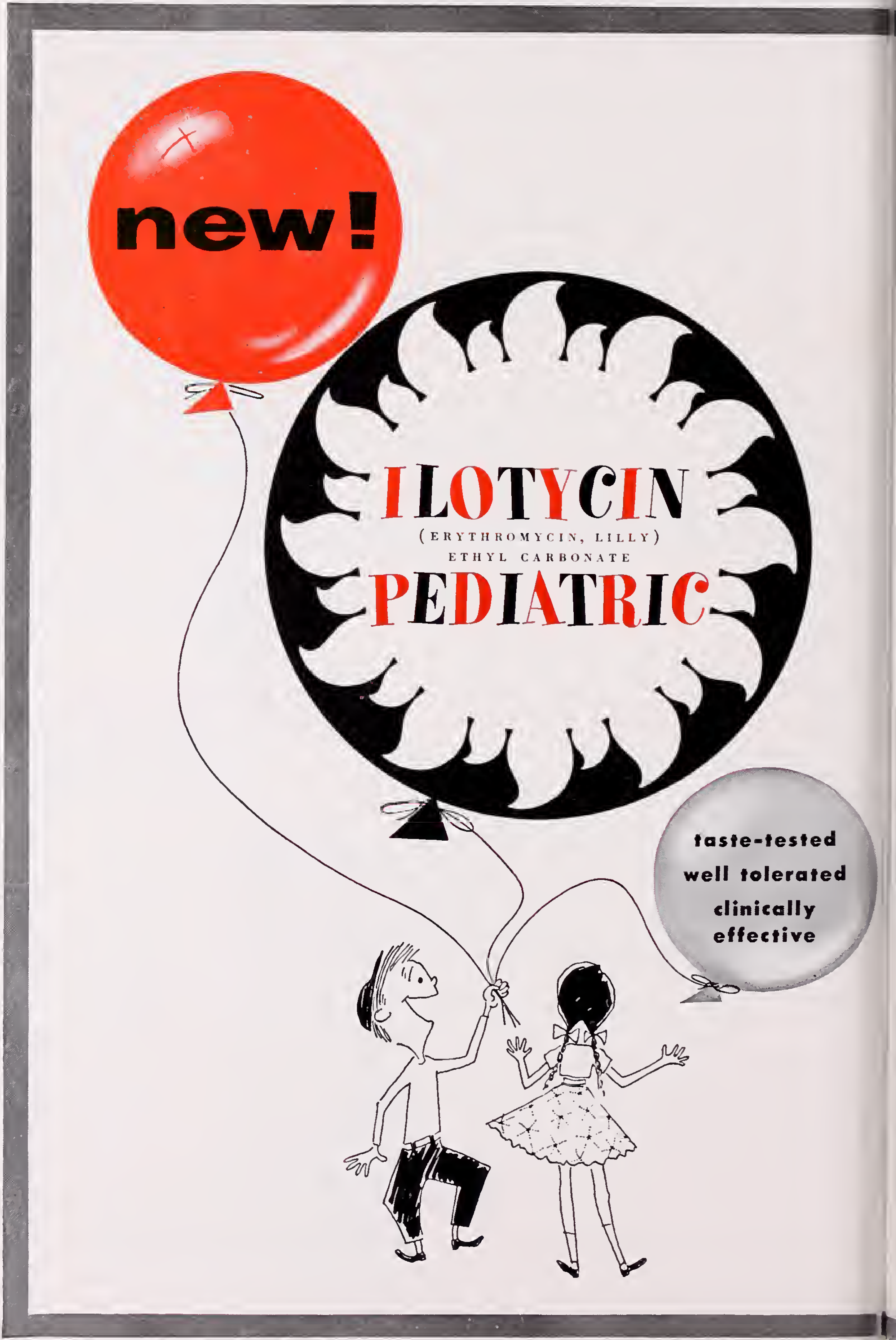
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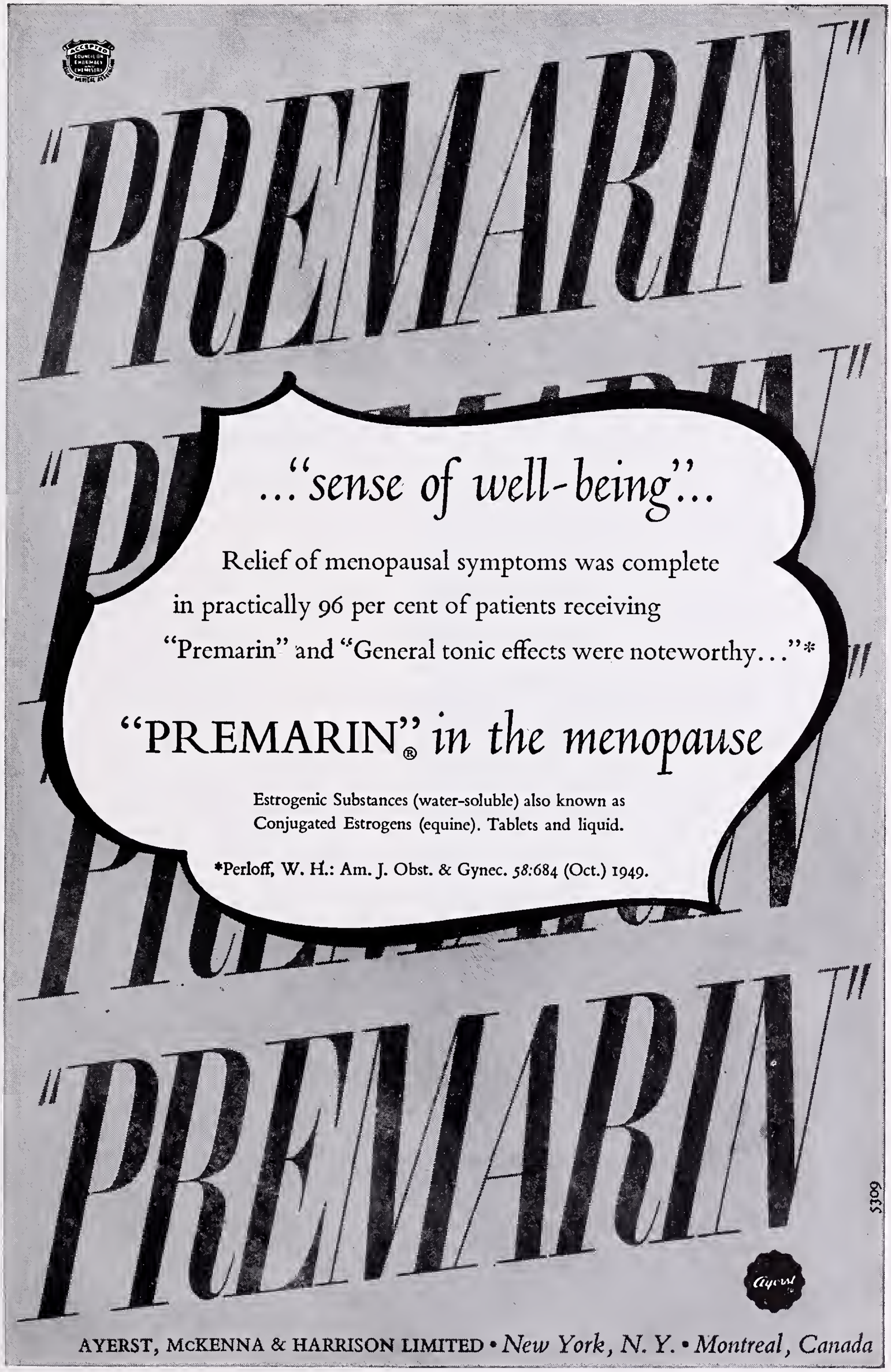
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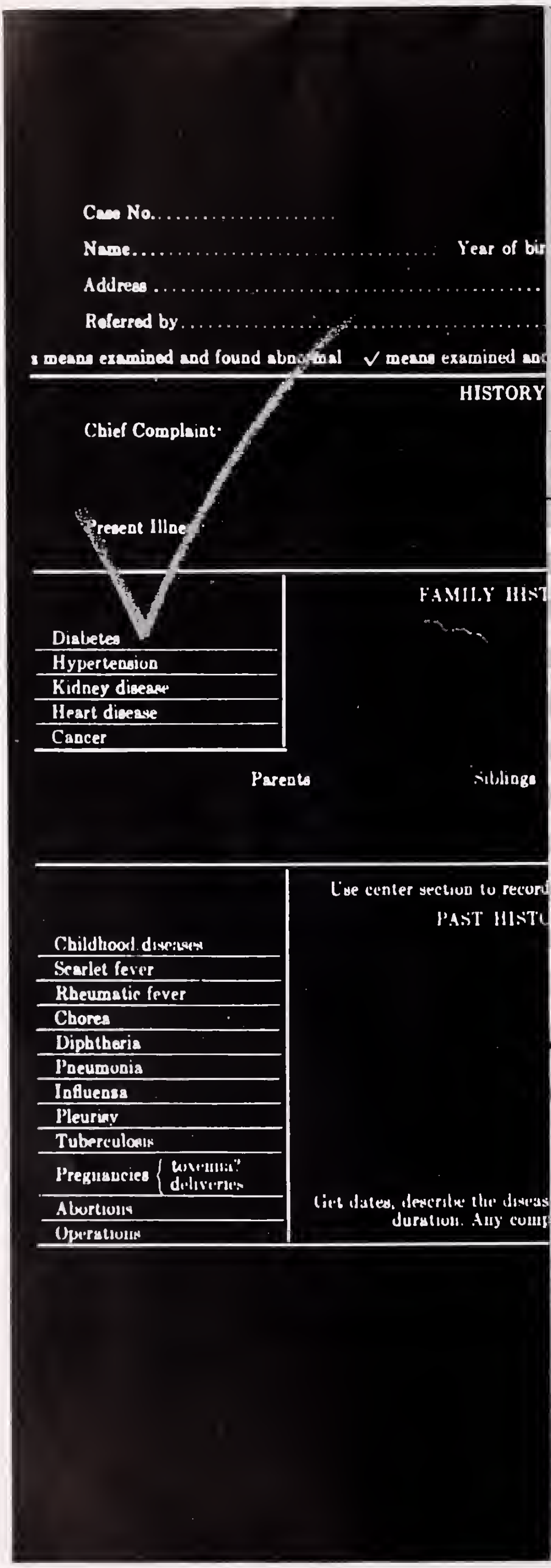

Case No. ....
Name. .... Year of bir
Address ....
Referred by ....
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HISTORY

Chief Complaint·

Present Illne

FAMILY HIST

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Hypertension
Kidney disease
Heart disease
Cancer

Parents Siblings

Use center section to record
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duration. Any comp

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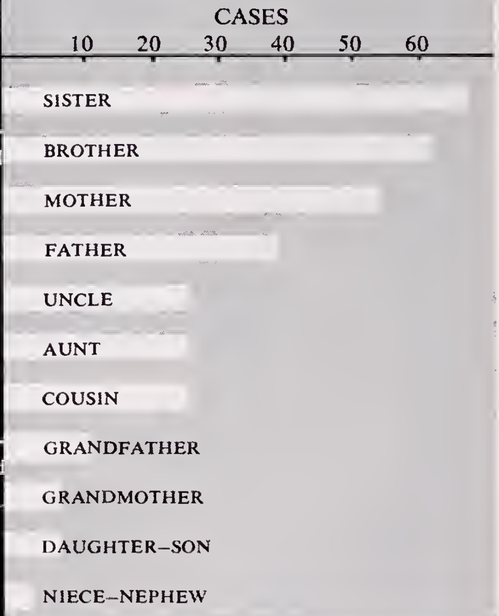

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1. Barach, J. H.: Diabetes and Its Treatment, New York, Oxford University Press, 1949, p. 38.
2. Allen, F. M.: Diabetes Mellitus, in Piersol, G. M., and Bortz, E. L.: Cyclopedia of Medicine, Surgery, Specialties, Philadelphia, F. A. Davis Company, 1951, vol. 4, p. 505.

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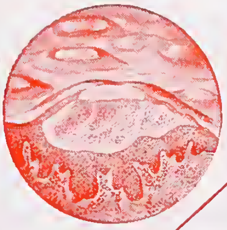
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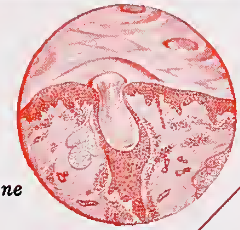
1. *Bednar, G. A.: South. M. J. 46:298 (March) 1953.*
2. *Wright, C. S. et al.: A. M. A. Arch. Dermat. & Syph. 67:125 (Feb.) 1953.*
3. *Robinson, H. M. et al.: South. M. J. (in press).*
4. *Andrews, G. C. et al.: J. A. M. A. 146:1107 (July 21) 1951.*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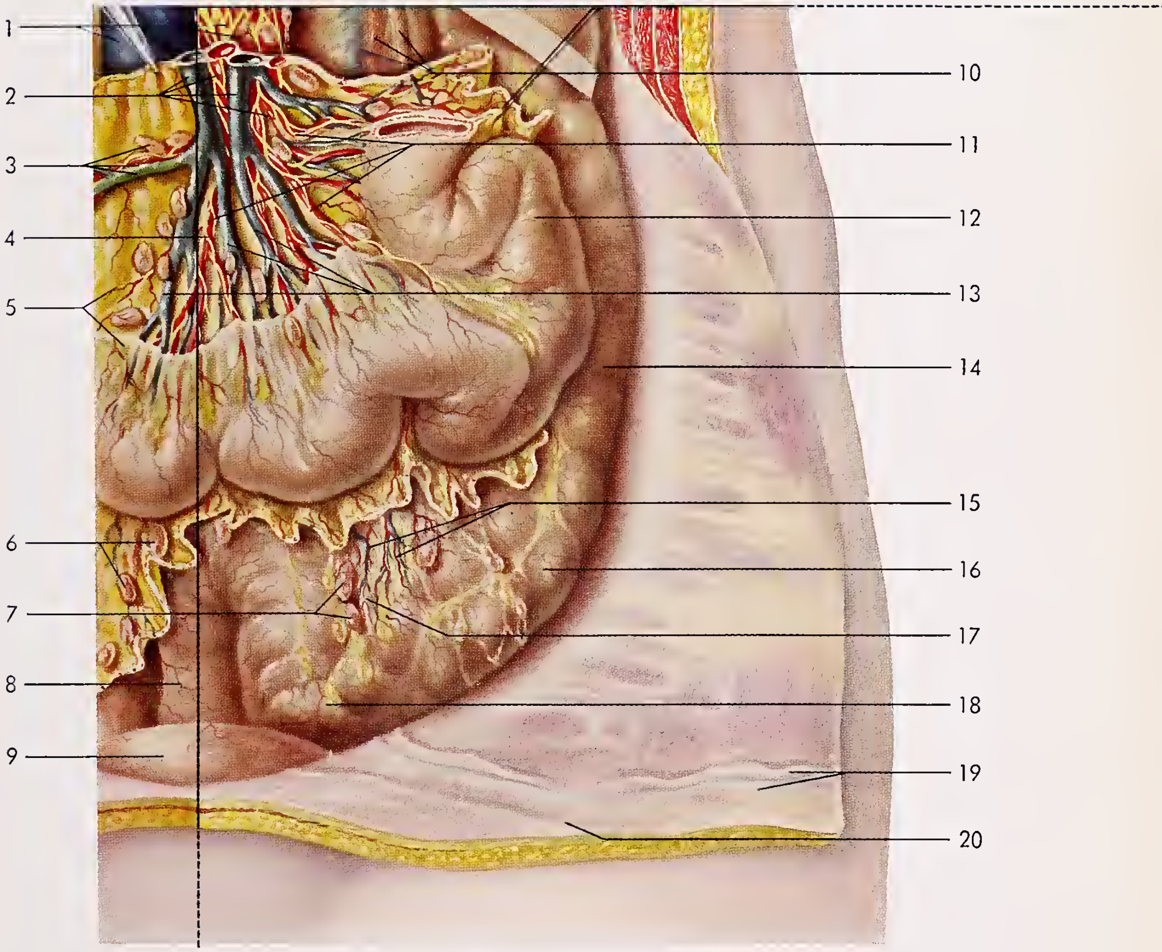

1 Vena cava, aorta and abdominal aortic plexus

2 Branches of superior mesenteric artery and vein

3 Ileocolic lymph node and ileocolic artery and vein

4 Sympathetic abdominal plexus

5 Mesentery

6 Mesenteric lymph nodes

7 Mesocolic lymph nodes

8 Rectum

9 Urinary bladder

10 Inferior mesenteric vein, left colic artery and ureter

11 Intestinal arteries

12 Ileum

13 Intestinal veins

14 Descending colon

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16 Iliac colon

17 Mesocolon

18 Sigmoid colon

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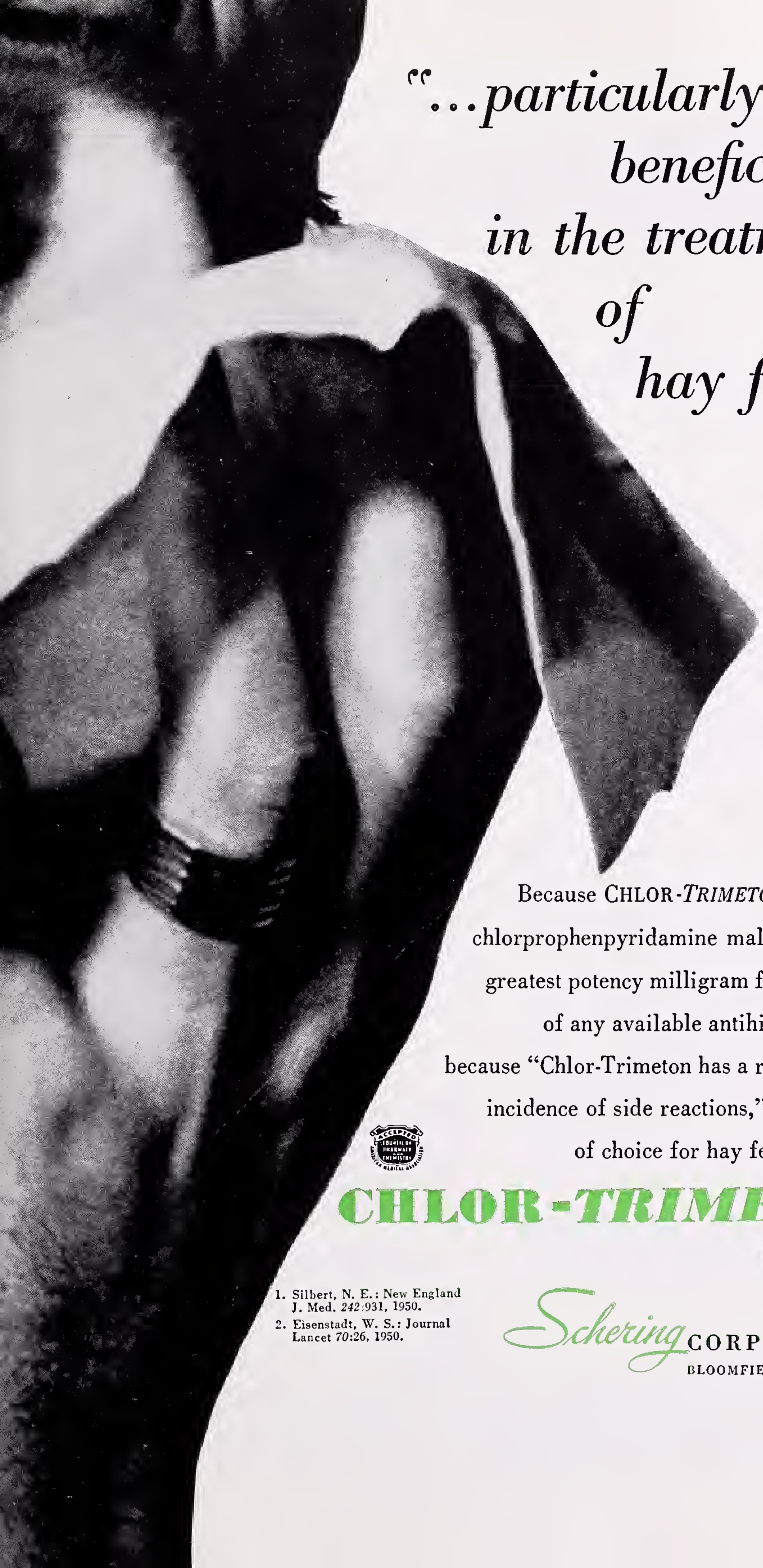"...*particularly beneficial in the treatment of hay fever.*"[1]

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1. Silbert, N. E.: New England J. Med. *242*:931, 1950.
2. Eisenstadt, W. S.: Journal Lancet *70*:26, 1950.

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RECOGNITION OF PSYCHIATRIC APPROACH TO CRIMINALS BY THE DELAWARE COURTS

M. A. Tarumianz, M. D.*
Farnhurst, Del.

Crime has never been properly understood, possibly because it is so difficult to be dispassionate in our consideration of it, due to our emotional reaction, when some one interferes with our individual rights, or with the accepted social structure of our society. In spite of the fact that it has been quite definitely proven, that punishment does not ameliorate the situation, we still consider it the proper procedure. Society still demands that the criminal suffer, the degree depending upon how much the collective ego of the social group has been offended.

A criminal is a person, who is unable to subjugate his personal desires for the good of society. This inability to withhold the realization of personal desire until some future date, or to give it up entirely for the welfare of the group, may be considered an abnormality and is a primitive reaction to life situation. There are several methods through which this satisfaction can be obtained and these are the situations under which crime is committed. The method of obtaining these personal desires may be through passion, with an intense emotional reaction; through impulse with rapid commitment of the crime, without intense emotions; or through premeditation during which there is practically no emotion and a carefully thought-out plan of activity. When a personal desire is not realized, there is often present a strong emotional coloring, unless the forces behind this desire are sublimated and thus releasing the pain through some substituted field of activity. It is conceived that the strongest emotion, which plays an important part, is fear which almost always demands an immediate release. Fear usually is the motivating force behind many of our reactions.

One must be careful to differentiate fear from terror, since fear may be a prolonged reaction, lasting throughout the life of the individual. There may be also involved a fear of not being able to obtain one's ideals.

Crimes committed by the mentally ill are based on the same fundamental factors, but in the mentally ill the behavior is activated by a false premises in no way acceptable to existing facts.

In considering the etiological factors which cause the individual to react in an antisocial manner toward his driving emotions, the psychiatrist feels that it is necessary to delve in the early life of the criminal. A few are inherently psychopathic and are not amenable to social or psychiatric treatment. However, these are greatly in the minority and cannot be considered as comprising the bulk of the criminal population. Another small number are mentally defective and are often the tools of more intelligent men who carefully plan out their activities and who use the defective, born without normal inhibitions and with inability to reason, to carry on the mechanical end. Since these mentally defective individuals are highly suggestible, they will often become law-abiding under the influences of an ideal social environment, but they again readily succumb to criminal suggestion when these social influences are removed.

Our present psychiatric knowledge offers no hope for the rehabilitation of the criminal with a psychopathic personality. His inherent egocentricities are so great that his life is a law unto itself, and he fails to recognize the rights of others. Not all psychopaths are criminals but they're always antisocial and their behavior is such that they cannot adjust to group life. The best that can be done for them is to remove them from society or, if this is not feasible, to create proper supervision in an environment where the opportunity to commit crime is at its minimum. But there still remains a large group of criminals who are not psychopaths and who are not mentally defective individuals. Could it be possible that the struggle which primitive man underwent to maintain his life, which is now carefully guarded by society, has not been properly compensated for? Is it possible that the early physiological equipment to meet this struggle is still present in the human race and that a certain amount of danger is necessary for a healthy emotional life? However, this is largely philosophical and in no way answers, at least at the present time, why the criminal chooses that particular mode of life which is contrary to the activity of the group, even though man is primarily a gregarious animal. Let us briefly mention a group which makes up a certain small percentage of those who commit offenses of a minor type, to escape immediate ruin either for themselves or their family group. However, whether we here deal with petty stealing to avert starvation or actual felony to maintain a certain standard of living, the motivating force is the same, viz. fear of losing what the individual ego feels is necessary for successful living. The degree of the crime is determined by the standards of living which have become habitual to the individual committing the offense.

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The law recognizes the force produced by fear when self-protection becomes necessary only in its most primitive form; that is, self-protection against bodily harm or against property rights and then only when the situation, at the moment, allows for no other means of self-defense than actual assault. Could cold and hunger be eliminated from our social life, a small percentage of crime would become a matter of past history. Unfortunately, simply adequate food and warmth are not all that are considered essential for adequate living. We, a young and aggressive country, have elevated our standards of living to such a height that it would be impossible for any system of relief to meet the demands which the average American citizen considers as adequate to meet the necessities of life. At the present time, it seems necessary to continue our efforts to lessen the incidents of crime under our present social system, although it seems undoubtedly true that tremendous upheavels are in progress. Under such a situation, it would seem that individual education, the aim of which would be to adapt the individual to live harmoniously in any social group or system, would be the only solution. Education beginning early in childhood, with the aim of developing a respect for the individual, as well as property rights of others, with an early understanding of the individual, of his own possibilities and limitations and with the elimination of all factors which may cause starvation or actual physical hazards due to the lack of necessities, should help to produce a sense of security among the people, with its accompanying contentment with life, and should help eliminate some of the factors which cause fear and, thereby, lessen the number of anti-social acts. Eliminating those factors, the deprivation of which strike at the very fundamental factors of life, we still have a large group who commit crimes for no apparent reason.

The anthropological factors in criminals differ in no material way from those of the population as a whole. What manner of man then is the criminal who refuses to follow the natural order of society and who is not deterred by the severity of punishment? How can we adequately explain the fluctuations in crime which appear at various intervals? Are these fluctuations local, national or international? Are they based on group psychological aspects, caused by national, or world economic or social forces? These questions, it seems to me, are still to be adequately answered. Again, I repeat that the only solution which I can see, and this solution is only partial, is to educate the individual from early childhood to appreciate the fact that he must, of necessity, live in a group, that his ultimate good is obtained by following the laws which seem to be best for the welfare of the majority of the group, and that to adjust in society as a whole, he must develop certain inhibitions and sublimate certain desires, the realization of which will be contrary to those mores which the group has set up as being essential for society's highest development.

He must learn that the development and welfare of society as a whole is of more importance than that of the individual. He must learn that primitive behavior is not acceptable and is not compatible with his own welfare in our present social standards. He must also realize that the postponement of realizations of natural desires produces a far greater reward in our present civilization than immediate realization.

This education of the individual must start at infancy and, in order to do so, we must investigate the home life of the child. It is essential that the early emotional life of the child should be normal and should develop equally with his physical life. The child-parent relationship should be that of protection and mutual respect, with a gradual training of the child which will enable him eventually to be able to break away from the family group and become an individual who is self-sustaining in a social manner. Throughout his early life, the child should have a sense of security so that the emotion of fear does not become habitual. Such a task is tremendous and we can only ask whether, at an early age, we can recognize a condition which may be characterized as a pre-delinquent state. The pre-delinquent state is probably that phase in the development of the individual, whether a child or an adult, when inadequate or abnormal emotional reaction is noted. If this reaction is abnormal, we are probably dealing, in many cases, with a psychopathic or prepsychotic individual. Possibly one factor most noted in the criminal and precriminal states is an emotional flattening and a gradual development of egocentricity, factors which are usually caused by difficulties in the early environmental life.

Inherent defects may also cause a child to react in an unsatisfactory manner, even though the home situation is not at fault, since these defects make it impossible for the child to compete on equal terms with the majority of the social groups in which the child finds himself. Our educational system has been rather backward in accepting the fact that every child feels an inherent need to equal, in some sphere, the fellows in his group. If he is unable to attain this and a feeling of inadequacy develops, with an accompanying fear of failure, a child may seek some anti-social means of establishing his personality and so developing delinquent habits which eventually may turn into a criminal life.

The state of maladjustment before the onset of criminal tendencies is the time for therapeutic efforts. Our modern penal system does not seem to lend itself to permanent rehabilitation, as far as can be determined. Unfortunately, when leaving the prison, the criminal must face the same factors which were present at the time of committing the crime, with the added stigma of social disapproval. We have often not given the criminal an opportunity to rehabilitate himself. The average employer is suspicious and suffers from an overly-developed sense of self-protection.

Contact between the psychiatrists and those of the legal profession should stimulate members of both professions to seek not only a remedy to the problem of crime, but to search diligently for the etiological factors.

Since 1929, when the Delaware State Legislature established the position of the State Psychiatrist, the courts of the State of Delaware, through the Attorney General's Office, have utilized the facilities of the office of the State Psychiatrist. Most of the cases of felony have had preliminary examinations. Usually the courts have considered the reports of the State Psychiatrist before rendering a decision. Thus, during the past twenty-four years, the judges of our courts have gradually recognized the importance of psychiatric studies of individuals who have deviated from the accepted social standards.

About six months ago eleven teen-age students, who represent a cross-section of the population of a small town, were apprehended, because they were involved in a series of breaking and enterings, with and without larceny. Three of the eleven boys were nineteen years of age and the rest were eighteen years of age. Six of the eleven boys committed from eight to twenty offenses, one three offenses, two boys two offenses and two boys one offense each. A short synopsis of each boy's background, psychiatric and psychological studies, will possibly help one to understand the whole problem.

Case 1. (Age: 18 years) Offenses: 18

1. 5 Simple Breaking and Entering
2. 13 Breaking and Entering, with Intended Larceny.

Psychological Report:
Wechsler-Bellevue Scale:

Vocabulary	Q:	122
Verbal		125
Performance		135

"This boy is a tall, slender, neatly dressed young man. His manner is fairly assured. He cooperates and responds well and has a good vocabulary at his command. He says that he received better than average grades in high school. Mathematics was his best subject. English was perhaps the poorest. He wants now to become a dentist and registered at college in the predental course. Verbal proficiency is reduced in comparison with potentialities, although all language skills are better than average for age. He is well-informed on general topics, and uses language best in social situations. His reading ability is at the 11th grade level and far below expectations.

"While reality contacts are appropriate generally, some definite weaknesses loom up here. He is not so alert and observant as expected and thinking is relatively distorted at times. In new situations, where solutions of problems do not readily suggest themselves, he is aggressive and active. Spatial perceptions are unusually keen, planning ability decisive and manipulative of objects accurate and quick. He is familiar with social usages and customs and likes company.

"Projective tests give further details about his interpersonal relationships. He feels accepted by people in various positions. He likes best those who are friendly, talkative and easygoing. In meeting emotional challenges, he is very cautious. Positive attitudes are expressed about women and heterosexual relationships. There is some test evidences, however, that would indicate a confusion in regard to sexual role. He regards his mother as controlling and rejecting and his father as somewhat undemonstrative and impersonal. This young man tends to be self-centered and emotionally immature. There is much wishful thinking and a lack of real interest in achievement.

"This boy has superior intellect which meets the requirements for college training. Owing to personality dysfunctioning in language mastery, reality contacts and persistence, he does not make the best use of his potentialities.

"The recent anti-social activities are no doubt related to those limitations of functioning and to his emotional immaturity as evidenced by his excessive need for recognition."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

This individual has been referred to as having originated the entire project and yet he was unable to account satisfactorily for the motivating factors of his behavior. He recognized the fact that his predatory pattern was in evidence when he was much younger, when he and his peers "hooked candy bars from stores, not because they could not buy them but because they felt challenged to outsmart the proprietor of the store. This need to challenge adults and authoritative figures was probably an important motivating factor in his present difficulty. It explains his unsatisfactory relationship with the police, as well as with some of his teachers; it satisfied his need for power both in terms of his peers and of others. His relationship to his parents was apparently good, although there was some evidence of his resentment toward his mother's domination.

Much of the data noted above revealed this individual's immaturity and his self-concern. His judgment and reasoning were frequently noted to be unsatisfactory. It is quite likely that this would have been noted sooner if his intellectual capacity were not so high.

In summary, we are dealing here with a good looking, tall, slender individual, of good family background. Although smiling constantly during both examinations, it is quite likely that he has more remorse than appears on the surface. It is, also, quite likely that much of his activity was an attempt to assert his personality by outsmarting the police and other authorities.

It is our feeling that this young man was aware of the nature of his activities and may, therefore, be held responsible for them.

Should the court see fit to give this young man a suspended sentence or to place him on probation, it is recommended that he be referred to a recognized psychiatrist or to the Mental Hygiene Clinic for a program of further study and treatment. In any event, his activities should be supervised over a period of not less than three years.

Case 2. (Age: 18 years) Offenses: 20

1. 1 Attempted Breaking & Entering
2. 6 Simple Breaking & Enterings
3. 13 Breaking & Entering, with Intended Larceny

Psychological Report:
Wechsler-Bellevue Scale:

Vocabulary	Q:	127
Verbal		121
Performance		128

"This boy is a medium-sized young man who is well dressed and groomed. He is responsive and cooperates satisfactorily but appears somewhat tense and unhappy. He briefly states his problem as "being mixed up in the robbery gang in town" and believes he may get one year as sentence for his participation in it. He ascribes the anti-social adventure to "nothing to do in town" and "seeing how long he could baffle the police." There does not seem to be a realization of the significance of his activities.

"His language skills are better than those of the average youth of his age. He reads at the 12th grade level, is well informed generally, uses a good vocabulary for verbal expression, and can engage in abstract thinking of a rather high order.

"He is alert to his surroundings and readily detects relationships among current events. Social judgments are inclined to be immature and self-centered, however. He likes company, yet often schemes to his own advantage in interpersonal contacts. There is a strong tendency toward non-conformance and opposition, and a desire to be independent of superiors and authority generally. In projective tests, he views his father as stern and domineering. The mother, on the other hand, is perceived as helpful and understanding."

"Rorschach - TAT: There is tension from unsatisfied instinctual needs which do not seem to receive the free expression which he demands. They also restrict his creative imagination and his powers of mature living. There is an ineffective effort to intellectualize the anxiety he feels with the result that he has some feelings of intellectual inadequacy.

"This boy is a tense young man, of superior intelligence. He is in good touch with the concrete, physical environment but in dealings with people, he tends to be immature. Towards authority, there is an attitude of non-conformance and opposition. Drives for achievement and self-discipline are somewhat reduced. His good level of intelligence, adequate verbal ability and psychomotor efficiency offer partial compensations for weaknesses, however."

This young man was a cooperative individual on both examinations. He gave the impression of being a rather passive, definitely schizoid individual. He repeated the details of his offenses and revealed little evidence of any deep guilt feeling. It was the impression of the examiners that he had greater concern in relationship to the fact that he was caught than to his guilt. He expressed considerable hostility to authorities, particularly toward the police whom he felt persecuted him, while discounting his own part in the anti-social activities.

Summary: This boy is the product of a rigid, fairly satisfying and an over-protective mother. His history of being expected to set an example for his younger sibling, his need to dominate his sister might both be interpreted as a need to exhibit masculinity and aggressiveness. Also, his failure to find satisfaction in the school or to be challenged by the school authorities have been regarded as contributing factors in his present difficulty. Although he was surrounded with every luxury of life, his relationship to his parents was not close. It would seem that there was insufficient communication between this boy and his parents.

It is our impression that this young man is not fundamentally a psychopath, nor is he a criminally inclined individual. However, because of his personality defect, the possibility of recidivistic activities must be seriously considered.

It is our feeling that this young man was aware of the nature of his activities and may, therefore, be held responsible for them.

Should the court see fit to give this young man a suspended sentence or to place him on probation, it is recommended that he be referred to a recognized psychiatrist or to the Mental Hygiene Clinic for a program of further study and treatment. In any event, his activities should be supervised over a period of not less than three years.

Case 3. (Age: 19 years) Offenses: 14

1. 1 Attempted Breaking & Entering
2. 7 Breaking and Entering, with Intended Larceny
3. 6 Simple Breaking & Entering

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q:	109
Verbal		104
Performance		108

"This individual is a well-dressed young man, with affable, cooperative manner. Since graduating from high school, he has been employed as a sort of shipping clerk. He expects to enter college this fall. He wishes to study engineering to prepare for draftsman's work and building construction. In high school, grades were mostly below average. His best marks were obtained in history and his poorest in mathematics. For recreation, he participates in sports, watches television and reads—especially books on sports.

"His schooling background in the fundamental subjects is above-average, according to achievement tests at the Clinic. While verbal ability is average for capacity, it is the least developed of all traits.

"He is not very alert to his immediate world and seems somewhat detached from what is going on. Practical judgment may be impaired. There is an aggressive approach to the solution of new concrete problems, and energy is mobilized quickly for action. While he likes to be with people and be friendly with everyone, there is difficulty in forming genuine social relationships.

"According to projective tests, he identifies with the mother and respects the father. While he resents parental authority, he usually conforms to it. He verbalizes friendly feelings toward and expresses a preference for people who can be trusted and don't belittle others. Behind his affable manner, there is cautiousness and immaturity in social contacts. Guilt feelings about breaking and entering are seen in his projections.

"He adjusts readily to routinized activity and can conform sufficiently. He can achieve if not misguided by inappropriate decisions.

"This boy has high average capacity, which may or may not be sufficient to complete college training successfully. Practical judgments are somewhat impaired. He is a sensitive, immateur young man with some anxiety as to his sexual role. Feelings of frustration, need of social recognition, poor judgment and failure to consider the possible consequences of behavior are important considerations in his anti-social activities."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

During both examinations this boy was cooperative and completely lacking in defensiveness. His anxiety appeared to be superficial and revealed a considerable amount of immaturity. His emotional response, at least at the time of the first examination, was that of a child who has been caught in a trivial delinquency rather than that of an adult involved in a serious criminal charge. In the same way, his general emotional response to life's situations revealed immaturity and superficiality. The same thinking is noted in his identification with and relationships to people. He is essentially a follower rather than a leader. His capacity for genuine, adequate social relationships is limited. He is not too alert and indeed there is much of a schizoid personality in him.

Summary: We are dealing with a nice looking young man who revealed a rather peculiar smile throughout the interview and indicated that he did not commit these crimes for any particular purpose or to obtain money, but rather as a means of obtaining acceptance from the group with whom he was involved. He has denied hostility or negative feelings toward authorities in the Police Department.

It is our feeling that this young man was aware of the nature of his activities and may, therefore, be held responsible for them.

Should the Court see fit to give this young man a suspended sentence or to place him on probation, it is recommended that he be referred to a recognized psychiatrist or to the

Mental Hygiene Clinic for a program of further study and treatment. In any event, his activities should be supervised over a period of not less than three years.

Case 4. (Age: 18 years) Offenses: 13

1. 1 Attempt at Breaking & Entering
2. 4 Simple Breaking & Entering
3. 8 Breaking & Entering, with Intended Larceny

Psychological Report:
Wechsler-Bellevue Scale:

Vocabulary	Q: 117
Verbal	108
Performance	123

"This boy is a friendly, medium-sized young man who smiles easily. Although cooperative, one perceives that he is tense and anxious. He was registered in business administration at the university, but doesn't believe that he will return to college. He entered the university on condition, lacking language credit from high school, and has been in a special class for reading and composition there. In high school, he liked mathematics but found English composition difficult. For recreation, he enjoys participation in sports.

"Language mastery is below expectations for potentialities but all verbal skills are average or better in comparison with others of his age. He, at times, does not apply his knowledge as well as expected but engages in activities without due consideration of their outcome.

"Great variability occurs in his ability to handle reality contacts. In some respects, his contacts resemble those seen in neurotics. He is unusually alert to the daily stream of life, yet he is unable to think very logically about his observations. The conclusions drawn from evaluating experiences often are faulty and misleading. He feels inferior and may be overdependent on others. Social judgments also may be weak. On the other hand, aptitudes are exceptionally good in the manipulation of physical, inanimate objects. He sizes up a total concrete situation well, reveals an excellent grasp of spatial relationships and is decisive in planning. Fine muscular coordinations are speedy and accurate. He can move into action quickly and effectively.

"In contrast, motivation is poor. Long-range objectives are easily pushed aside for pleasure or less arduous tasks. Unless he is especially interested in an activity, perseverance soon wavers and achievement then depends on supervision by others. He is neither very ambitious nor reliable. Impaired motivation and verbal facility explain his difficulties with English composition and other fundamental school subjects.

"This boy has superior intellect. Personality dysfunctioning occurs in language proficiency, perseverance and reality contacts. This disorganization, together with feelings of inferiority and hostility, engendered by difficulties in academic achievement, need for social recognition and for male identification, and emotional immaturity enter into the explanation of his anti-social behavior.

"This boy expresses verbally only positive feelings toward others regardless of age, sex or personal relationship. He wishes, however, that his father would work only days so that he could see more of him at night. While he is able to think along conventional lines, there are difficulties in interpersonal relationships. He feels somewhat threatened by the outer world and reveals the height of caution in emotionally challenging situations. He tends to be self-centered and desirous of attention. In daily living there is an overdependence on others. His social adjustments are impaired by a degree of self consciousness. There are strong inferiority feelings and a lowered sense of personal adequacy. He is emotionally excitable and suggestible and at times acts out his conflicts. While immature, his emotional life is not uncontrolled. He considers himself a passive male.

"He has guilt feelings about 'getting into the mess I am in now' and thinks the future looks bad because of it. Aside from this trouble, his attitude toward the future is fairly optimistic."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

During the interview he was cooperative and frank. He did not appear to be particularly concerned or upset about the difficulty in which he finds himself. He admitted that he did this to increase his financial resources. He did voice regret over the fact that his parents had been hurt as a result of this situation. There is considerable evidence of immaturity noted. He had strong inferiority feelings, with a lowered sense of self-esteem. Reasoning and judgment were not of the best and his ability to persevere was decidedly limited.

Summary: We are dealing with a young man who has a very good understanding of his problem, who verbalized remorse at the time of the second examination and who was not essentially anti-social. The motivating forces for the entire situation lies in his need to associate with a socially more prominent group, as well as his need for increased economic resources. His feeling of social inadequacy made this important to him. His relationship to his parents appears to have been satisfactory.

It is our feeling that this young man was aware of the nature of his activities and may, therefore, be held responsible for them.

Should the court see fit to give this young man a suspended sentence or to place him on probation, it is recommended that he be referred to a recognized psychiatrist or to the Mental Hygiene Clinic for a program of further study and treatment. In any event, his activities should be supervised over a period of not less than three years.

CASE 5. (Age: 18 years) Offenses: 8

1. 1 Arson
2. 2 Simple Breaking & Entering
3. 5 Breaking & Entering, with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q:	105
Verbal		114
Performance		125

"This boy is an undersized youth for his age. His manner is earnest and confident. He cooperates well, although he communicates little spontaneously. Since high school graduation he has been working and most recently has been employed on the assembly line at General Motors. He has liked this job.

"This boy shows poor language facility relative to capacity, although verbal aptitudes are at least as good as others of his age. Reading skill is of eleventh grade proficiency and mental arithmetic is of about the same level of achievement.

"His reality contacts are good generally. He is not only very alert to happenings in his immediate vicinity, but also very analytical and logical in his thinking. He usually arrives at appropriate conclusions and can learn from experience. There is adequate skill and resourcefulness in the manipulation of the concrete environment. In contrast, social judgments may be faulty at times.

"Projective tests reveal the following:

"Attitudes toward superior and colleagues are good as a rule. Inferiority feelings, however, color social adjustments. He is sensitive about being "pointed out" because of size and physical appearance and fears being socially rejected.

"He verbalizes normal attitudes toward heterosexual relationships. He sees himself as a passive male and there is test evidence of possible confusion as to sexual role.

"Extremely strong guilt feelings about the burglaries occur in test findings.

"He has average motivation for achievement and can usually be depended on to fulfill his obligations. He is an energetic and reliable worker as a rule. A strong tendency to conform, together with impractical social judgments may lead him into trouble on occasion, but he learns from experience. Control of fine muscular actions is adequate.

"This boy has superior intellect. There is average personality functioning for capacity generally except in verbal proficiency. Weakness in the language area has tended to produce feelings of inferiority and hostility since academic achievement is so dependent on this trait. Being undersized and having a deformed leg have added to these feelings. As compensations, he has felt great needs to be accepted by his parents and peers, to conform to them and be considered a "regular guy." Herein probably lies the basis of his anti-social activities. It is predicted that this boy will make a better adjustment where academic achievement is not too important; where language mastery is of secondary consideration."

This individual gives a history of having had a considerable amount of poor health as a small child, a history of having had convulsions in early childhood and of having had an attack of polio-encephalitis which resulted in his developing atrophied muscles in the calf of his right leg. Although his actual physical handicaps, at this point, are minimal, his crippling condition has had an impact on his psychologic development.

During the interview he was frank, open, cooperative, critical of self and self-condemnatory. He revealed real regret over the difficulties in which he finds himself involved and criticised bitterly the attitudes of those, whom he states, ''treat the situation as a joke.''

This boy was a rather self-concerned individual who seemed to derive some satisfaction from enumerating and describing his various illnesses. He is quite sensitive about his deformity and tries to compensate for it by taking part in athletics, while avoiding those situations in which his crippled condition could be seen. He is a very sensitive individual and regards himself as being passive. He has a tendency to conform. He revealed impractical social judgments. He feels a need to be accepted ''as a regular guy.'' His relationship to his parents has apparently been good.

It would appear that the motivating factors for this young man's behavior were largely the need to be accepted by the so-called better social group, the need to be accepted in general and the inability to think and behave in an independent, aggressive manner.

Summary: We are dealing here with a somewhat slender individual, who early in childhood suffered a crippling of the right leg. He has some insight and understanding of the problem and recognizes his need to belong to the ''smart'' group. He states that after he committed the first crime, he wished to get out of it and adds that he was threatened with punishment if he attempted to do so.

While it is quite likely that this young man felt trapped after his first commitment, he was the only one who states that he was threatened.

It is our feeling that this young man was aware of the nature of his activities and may, therefore, be held responsible for them.

Should the court see fit to give this young man a suspended sentence or to place him on probation, it is recommended that he be referred to a recognized psychiatrist or to the Mental Hygiene Clinic for a program of further study and treatment. In any event, his activities should be supervised over a period of not less than three years.

Case 6. (Age: 19 years) Offenses: 9

1. 1 Arson
2. 2 Simple Breaking & Entering
3. 6 Breaking & Entering with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q: 106
Verbal	112
Performance	114

''This boy is a tall, dark, nice-featured young man, with a shy, anxious manner. He expresses himself with an acceptable vocabulary, cooperates well but says little spontaneously which is probably an outgrowth of an early speech retardation. In high school, he took the scientific course in which he had a ''C'' average. He is enrolled in electrical engineering at college at this time.

''Testing shows that verbal facility is adequate relative to potentiality, but acquisition of formal language skills is more difficult than application of them. Despite ninth grade reading ability, he has obtained a superior fund of general information. In mental arithmetic, his rating is average for age.

''This boy is aware of his immediate surroundings and misses little that takes place in the daily stream of life. However, connections among events may be unobserved at times and appraisal of experiences less accurate than expected. On the other hand, he analyzes a concrete problem well. If he fails to see a solution at once, he actively tackles the puzzling situation until the possibility of a suitable answer is found or ruled out. His manipulations of inanimate objects reveal dexterity and good planning ability. He is familiar with the social amenities but his attitude toward people have been warped by early speech difficulties and give him a strong sense of inferiority and opposition toward authoritative figures.

''This boy is a shy, sensitive young person who finds it difficult to accept and identify with others. His self-conscientiousness tends to impair reality adjustment. He is inclined to be self-centered although in need of affection and attention. There is immaturity, excitability and sometimes suggestibility but his emotional life is not uncontrolled. He has a fear of walking in the dark in the "dawning hours of night." His greatest weakness, he says, is a little shyness. He considers himself to be a rather passive male.

"He verbalizes positive feelings toward both parents and says they treat him fairly. Yet, on the projective tests, he expresses the feeling that his parents are dominating and controlling. He feels hostile toward them and wishes to make them unhappy in retaliation and then has guilt feelings about his thoughts. Strong guilt feelings about the burglaries are also seen on the sentence completion test.

"He expresses mutually good feelings with other than authoritative figures. He likes working with people with whom he has something in common and who are ambitious. He thinks a 'real friend should be considerate of others, have good moral training and a sense of humor.'

"He is fearful, hostile and evasive in dealing with authority which is probably a reaction to his inability to express himself verbally for many years due to a severe speech retardation.

"He has a few fears and says his greatest weakness now is a little shyness. He considers himself a rather passive male. He tends to be self-centered although in need of affection. There is an ineffective effort to intellectualize the anxiety which accompanies feelings of personal inadequacy. Guilt feelings concerning the burglaries are prominent in the sentence completion test.

"He has high average endowment and a reasonably normal personality. His shyness and fear of people appear to be a residue from trying to socialize for years when he was unable to express himself by verbal means as most children of his age did. It is likely that his strong sense of inferiority and antagonism toward his parents have been fertile soil for suggestions to engage in anti-social activities."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

During the examination, he was cooperative and somewhat spontaneous but revealed a tremendous amount of tension and anxiety, both in his content and in his restlessness. He was extremely self-critical, as well as fearful of the opinions of others. His degree of self-esteem was limited and his judgment wasn't too good. During the interview he showed a considerable degree of preoccupation with his shyness and with guilt feelings in relationship to the present affair. There was evidence of hostility toward authority but not to people in general. He regards himself as being a passive individual and this was borne out by the psychologist's test. In many respects, he is naive and schizoid.

This young man is a product of inadequate guidance in his home and at school. The assistance which he might have had in these places, in connection with his early speech difficulty, was not forthcoming and so it was necessary for him to pay tribute to his peers in terms of subjecting himself to unsatisfactory guidance by them, as well as to the abuses which come his way from some of them.

It is our feeling that the community, as well as this individual, would best be served if this young man is placed on probation, with the understanding that he will receive psychotherapy. In view of the fact that he is, at the present time, going to college, it would either be necessary, if these plans are carried out, to have him transferred to a college in this vicinity, or to have the State Psychiatrist contact a suitable psychiatrist or psychiatric agency near where he is attending college. The problem of probation, of coure, will have to be handled through the court.

Case 7. (Age: 18 years) Offenses: 1

1. 1 Breaking & Entering with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q: 118
Verbal	121
Performance	108

"This boy is a rather tall, slender youth, reserved in manner. In high school, he took the scientific course and received average grades. He feels that he could have done better if he 'had worked.' While he does not 'care to read too much,' he has no trouble with composition and grammar. Mathematics has given him no unusual difficulty, he says.

He registered this year at college in the premedical course.

"His reaction time to test items is unusually variable. He may respond quickly enough to receive additional credit or so slowly as to indicate preoccupation. A return to easy verbal items failed often results in success. If he doesn't know how to go about a test, he may request specific help instead of aggressively trying to solve the problem through trial and error.

"Tests at the Clinic reveal high average reading skill. In mental arithmetic his best score is obtained. Language mastery is consistently good. He tends to be over-cautious and suspicious in considering new ventures and his judgments on occasion are inappropriate. He likes to be around others and knows what is usually expected of one in a social situation. A dependent, passive role is desired in the everyday affairs of living.

"This boy is very conforming and following poor judgments may conform to the wrong leadership or practice. He is, however, usually a dependable, reliable person in meeting obligations and carrying out assignments. Routine adjustments are easily achieved. His visual-motor coordinations are well developed and energy is quickly mobilized for physical activity.

"Although he has superior native endowment, dysfunctioning in reality contacts limits effective use of personal resources. The projective tests explain further the nature of his personality problems. He has difficulty with social relationships and, therefore, also with personal relationships.

"Projective tests reveal that he identifies with his mother who is the dominant parent and rejects his father who, he feels, is weak, indecisive, unhappy and meddlesome in family affairs.

"As a reaction to his insecurity, he has aggressive attitudes towards authority and is cautious in becoming involved in emotional situations. He does not accept others readily and yet needs recognition.

"It seems probable that his aggressive needs toward authority, friendliness offered by his peers, desire for masculinity, tendency to be a follower, and poor judgments account, in large measure, for his recent antisocial activities and his failure to make the most of his potentialities."

There was a history of this young man having had a broken neck two years ago and this is felt not to be a contributory factor in the present situation. There was no other gross evidence of any physical or neurological disorder of a contributory nature.

During the interview, this young man was cooperative and reasonably spontaneous. He admitted participation and he attempted to dilute responsibility for his acts by projecting the responsibility on to his peers and by claiming special merit because he got out early. There is little to indicate that this individual identifies with any one person as an ideal, but his greatest identification is with his mother. He indicated a good deal of resentment toward his father which comes to the surface easily, but he actually does very little about this resentment. The pleasure which he gets from gambling, together with his history of drinking quite a bit, are evidences of his immaturity, as is his willingness to take a secondary role in his choice of a profession. In spite of his intellectual ability, he has little self-esteem. He is a decidedly conforming individual, tending to follow leaders in an uncritical manner; thus revealing his poor judgment.

Summary: This is a slender, young man, who has considerable insight into the nature of his behavior and, also, some slight insight into the motivating factors. He recognizes that his behavior was antisocial and certainly he evidenced this when he discontinued his predatory behavior immediately after he began. Indeed, he insists that he went to Philadelphia in order to avoid contacts with the leaders, whom we have already considered. If, because of the minimal number of charges placed against him, the court should see fit to give this young man a suspended sentence or probation, it is extremely important that he receive psychotherapy. This, of course, could be arranged either with a recognized psychiatrist in the community or through the Mental Hygiene Clinic. In any event, he is not likely to repeat his former pattern of behavior.

Case 8. (Age: 18 years) Offenses: 3.

1. 1 Simple Offense: Breaking & Entering
2. 2 Breaking & Entering, with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q:	118
Verbal		117
Performance		115

"This boy is a slender, blond-haired young man of medium height who is neatly and tastefully dressed. He is tense and anxious during the interview and his face flushes easily. Cooperation is good.

"In high school he received average grades; civics was his best subject. For recreation, he likes to participate in sports of various kinds and may read a book occasionally. At college, he registered in business administration.

"According to achievement tests he reads at the 11th grade level and his mathematical calculations are exceptionally quick and accurate; verbal abilities are adequate for capacity and consistently high average for age.

"He can persevere normally. He is capable of setting long range goals and of working steadfastly toward them. Routine adjustments are taken in stride. Anxiety, however, tends to affect his immediate attention adversely. He is reliable usually but may be misguided at times by weaknesses of judgment.

"His contacts with the physical, inanimate world are among his best and manipulative ability is adroit and quick. He appears somewhat preoccupied and unaware of happenings about him. Reasoning on the basis of observations may be illogical and conclusions fallacious. In these respects he resembles certain neurotics. Social judgments are moderately impaired.

"While he can identify with others, his attitudes toward people are some times derogatory and hostile. He likes considerate people best and those 'who don't brag.' He likes to work with people who take the initiative. Apparently, he prefers those who do not increase his inferiority feelings and who offer him a source of identification. He feels that his parents are dominating and may show resistance when his father attempts to influence him. He verbalizes normal attitudes toward heterosexual relationships and says he looks forward to marriage.

"This boy verbally expresses only positive feelings toward his parents, yet there is evidence that he regards both of them as dominating. He yields to his mother's wishes without much resistance but shows more independence and displeasure when his father tries to dominate him. He looks on his father as a stern, hard-working man, although kind. He wishes his father would not work so hard—"he seldom gets tired."

"His idea of a perfect woman is a 'gentle, kind, attractive person.' Criticism of women are only minor and superficial. He verbalizes normal attitudes toward heterosexual relationships and looks forward to getting married.

"He is a sensitive, anxious young man who is trying ineffectively to intellectualize his anxiety with resulting feelings of intellectual inadequacy. He expresses a fear of birds, thunder and attacks by others. Guilt feelings over the burglaries with which he is charged are frequently expressed in the Sentence Completion Test. However, he seems generally optimistic about the future and confident of his ability to overcome obstacles. He wants an education and success. His greatest weakness, he says, is being too easy going.

"Emotionally, this young man is somewhat immature. Although he can identify with others, his attitude toward other people is unsatisfactory, in that he tends to belittle them. While he expresses mutual good feelings with colleagues and authoritative figures, yet he also expresses hostility to people. According to his statement, 'People whom I consider my superiors are few and far between.' It appears that he prefers people who do not make him feel inferior and offer him a source of identification.

"Hostile attitudes toward authority, immaturity and need to be accepted as a social equal and need of male identification appear influential in his anti-social behavior.

"This boy is a sensitive young man, with many fears and feelings of inadequacy. Yet, he expresses confidence in his ability to overcome obstacles and wants an education and success.

"His endowment is superior and adequate for good achievement at college. Some neurotic tendencies prevent his functioning at this level, however. Poor reasoning, weak judgments, hostility towards authority, his need to be accepted as an equal and to have male identification seem to underlie his recent anti-social activities."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

During the interview he answered questions readily. Although there was little evidence of anxiety in his thought content, there was considerable physical evidence of anxiety. In spite of the fact that he was only minimally involved, he has considerable feeling that he will be punished severely. Although this young man comes from a good home, it would appear that his relationships to adults were not particularly close. However, there undoubtedly have been times when his relationship to his father has been very good.

This individual revealed evidence of impaired social judgment and inferiority feelings which he attempted to manage by intellectualization and by belittling other people. His reasoning and judgment are poor. He has not established a satisfactory masculine identification.

Summary: We are dealing here with a young man who has apparently developed satisfactory insight into the nature of his antisocial acts and, to some extent, into the motivation. We feel that the motivating force here was an attempt to be smart and "adventurous" and that, therefore, retreat, at the time of the first adventure, would have caused him to be condemned as being a "sissy" or "yellow." He is not likely to repeat his anti-social activities.

It is our feeling that the best interests of society and of this individual will be served if he is placed on probation for a period of not less than two years, and if he is referred to a competent psychiatrist or to the Mental Hygiene Clinic for psychotherapy.

Case 9. (Age 19 years) Offenses: 1

1. Breaking & Entering with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q:	109
Verbal		122
Performance		113

"This boy is a big, broad-shouldered, dark-haired youth of stocky build. He is pleasant, somewhat anxious and cooperative. He responds to questions and test directions in a quick, decisive manner. He graduated from high school and now is employed in office work, which he likes. He has a yen to study journalism, but possesses neither the necessary credits nor money to enter college at this time, he says. High school marks were average.

"According to the test results, he reads at tenth grade level and is extremely quick and accurate in arithmetical calculations. Verbal proficiency is below average in comparison with potentialities, although at least average for age. There is tremendous variability in respect to language mastery. He is well informed on general topics and capable of a high order of abstract thinking while reading. Vocabulary and verbal comprehension are less outstanding.

"He is not as alert to happenings around him as expected, nor does he analyze experiences well. He expresses fears of snakes and other animals. His grasp of spatial relationships is exceptionally good and his ability to manipulate objects is decisive and skilful. "Mechanical know-how" is one of his chief assets. Although big and of stocky build, he is agile and moves quickly into action. Social contacts are somewhat inadequate.

"This boy identifies with his mother and is fond of his father. He expresses concern about his father's health. Normal attitudes toward heterosexual relationships are verbalized, with some ambivalent feelings toward girls. He thinks most women are changeable and fickle and dislikes this quality in the opposite sex. Feelings toward superiors and colleagues seem very good.

"This young man is inclined to be introverted and cautious in emotional challenges. He considers himself a passive male. Ambition, with a strong need for recognition and success, is a dominant theme in his fantasy life. In actuality, achievement is not marked. He has fears of snakes and some other animals.

"Guilt feelings are expressed strongly in the projectives. 'I would do anything to forget the time I broke the law.' 'The worst thing I ever did was breaking the law', he says.

"This boy has superior native capacity. Mild personality disturbances occurring in verbal proficiency, reality contacts, and perseverance limit his effectiveness. These factors, plus a great desire for recognition and success in a field barred to him for the present because of circumstances, are operative in his anti-social behavior. He wishes to become a journalist or a famous writer. He has sufficient capacity for achievement in this field but his personality disorganization, in itself, could prevent realization of this dream."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

In the examining situation, he was slightly tense but cooperative and spontaneous, and completely lacking in defensiveness. Aside from some inadequate social contacts, from failure to adequately identify with a male object, we feel that this individual is fairly well adjusted. He has very strong guilt feelings regarding the present difficulty and evidenced this guilt by immediately removing himself from the group after the first involvement.

Summary: We are dealing here with an attractive looking young man who appears to be a fairly good mixer and who has satisfactory insight. It is our feeling that the best interest of the community would be served if this individual was placed on probation. He would benefit from psychiatric assistance.

CASE 10. (Age: 18 years) Offenses: 2

1. 1 Arson
2. 1 Breaking & Entering with Intended Larceny

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q: 95
Verbal	98
Performance	104

"This boy is a nice-looking young man, who is anxious and cooperative. He expresses himself with an average vocabulary and talks freely. In high school, his best marks were obtained in social studies. Grades were average or a little below. He has been in college with a major in history and a minor in physical education, using a football scholarship. He would like to be a coach. For recreation he participates in all sports and plays the guitar. Some times he reads adventure stories but doesn't read much for pleasure.

"His language mastery is average for capacity on the whole but considerable variability exists here. He reads at ninth grade level, or as well as the average youth of his age. He generalizes well and is capable of reflection and foresight as to the consequences of behavior.

"Often he fails to be as observant as expected and reasoning may be ineffective. He acts in these respects like certain neurotics. In contrast, contacts with the physical, inanimate world are better than average. He sizes up a concrete, spatial problem well and assumes an aggressive approach in solving it. Social judgments are weak at times.

"The projective tests add further information about interpersonal relationships. He identifies with his mother but is fond of his stepfather. He is supersensitive and tends to feel inferior and dependent socially. Normal heterosexual attitudes are verbalized. Guilt feelings about the burglaries are very strong and fear of going to jail is expressed. He prays for the opportunity to make amends, he says.

"This young man has the initiative and ability to set and pursue a long range goal in a normally persistent way. He is usually dependable although, at times, he may be misguided by faulty reasoning and judgment. Fine muscular action is under adequate control.

"This boy has high average endowment. Weaknesses in reality contacts impair his effectiveness. Reaction by aggression to inferiority feelings, arising from maladjustment in reality perceptions, is undoubtedly one of the factors underlying his recent antisocial behavior."

There is a history of this young man having had a concussion and of having been unconscious. There was some evidence of tension noted in his restlessness, but there was no evidence of any other physical or neurological disorder of a contributory nature.

During the examinations he was cooperative and gave fairly good details in answer to questions regarding the situation in which he is involved. He feels that he did wrong and adds that he made restitution. He leans over backwards in a self-derogatory attitude and in so doing revealed rather poor judgment; also, he defended himself against guilt feelings by criticising those who were similarly involved and who failed, in his opinion, to show an adequate degree of remorse.

While this young man has a satisfactory relationship to his stepfather and had a satisfactory relationship -to his grandfather as well, he had not established any strong relationships. Although he has known his own father and has been out with him, his feelings toward the latter are decidedly of a negligible nature. There is considerable evidence of immaturity noted in his attacks on his co-defendants, and he leaves a feeling that some of his behavior is of an exhibitionistic nature. He has a feeling of inadequacy; needs much recognition; his approach to life is colored more by wishful thinking rather than goal-striving.

Summary: We are dealing here with a shy, timid, slender, young man, with schizoid personality, who expresses extreme remorsefulness, who states that he wants to be helped and who is not likely to repeat, at this point, the behavior which has brought him into conflict with the law.

It is our feeling that the best interests of society and of this individual will be served if he is placed on probation for a period of not less than two years, and if he is referred to a competent psychiatrist or to the Mental Hygiene Clinic for psychotherapy.

Case 11. (Age: 18 years) Offenses: 2

1. 1 Breaking & Entering with Intended Larceny
2. 1 Arson

Psychological Report:

Wechsler-Bellevue Scale:

Vocabulary	Q:	113
Verbal		121
Performance		118

"This boy is a tall, dary-eyed young man of friendly manner. He seems frank in describing his part in the activities of the robbery and feels that they were childish. He ascribes them to hostility toward the Police who treated boys in the town unfairly.

"He has been studying engineering at college since September, 1952. His grades in engineering and drawing are above average; algebra and chemistry are fair, but not up to average. He was conditioned in English and grammar. He states that he never reads for pleasure.

"Reading skill, according to a test at the Clinic, is of ninth grade level, and low enough to present an obstacle in college work. While language mastery is average for capacity, reading and ability to handle abstract concepts are the poorest of his verbal scores. He has a good fund of information and a rather wide range of interests, nevertheless. There is sensitivity to and interest in his surroundings but experiences and observations receive poor evaluation. He is not very reflective or analytical in thinking and often fails to weigh outcomes before engaging in activities.

"His manipulation of concrete objects and 'mechanical know-how' are, at all times, better than that of most youths of his age. He acts aggressively but thinks of himself as a rather passive individual.

"He expresses only positive feelings toward the mother, although he regards his father as unreasonable on occasions. In general, his criticisms of women are minor and superficial; his attitudes toward heterosexual relationships are verbalized as normal. He expresses comfortable feelings with associates but some times expresses fear of losing friends. Other fears admitted are of the dark and of fast cars.

"He can think along conventional lines and conforms easily. Since he is not very analytical in thinking or given to the use of foresight, he may follow the wrong leader as a result of his conforming tendencies and his fear of losing friends.

"In his personality makeup, there are considerable self-control, ambition, and ability to pursue long-range goals. If placed on work suited to his aptitudes, adjustments are apt to be good. There is, at this time, a desire to free himself from the family apron strings and be 'on his own.'

"Fine muscular actions are well-developed and one of his best assets.

"This boy has superior intellect. While most of his functioning is above average, lack of foresight on occasions and difficulty in handling verbal symbols are distinct liabilities to good adjustment."

There was no gross evidence of any physical or neurological disorder of a contributory nature.

During the interview he was cooperative, somewhat spontaneous and evidenced genuine regret over the incidents in which he is involved. He revealed a reasonable amount of aggressiveness, tended to under-evaluate himself and to feel that he is not capable of living up to the relatively high standards set out for him by his mother. At the same time, he considered the father to be quite strict and sometimes he "did not understand."

The motivating force for this individual's behavior seems to lie in his need for recognition, for assistance in overcoming his immature fears and in the failure of those about him to adequately stimulate him and to bring out his best resources. It would seem that there was not adequate communication between this young man and his parents.

Summary: We are dealing with a young man who gives the impression of being nice-looking and of coming from a good family. He appears to have recognized his mistake in connection with these offenses and he shows adequate response to this.

It is our feeling that this individual is a maladjusted young man and that his interests would best be served by placing him on probation for a period of not less than three years. He should, at the same time, be under the care of a recognized psychiatrist or the Mental Hygiene Clinic.

The above cases of the eleven young men who were involved in a series of predatory acts in and around a small town in Delaware have been studied by the Mental Hygiene Clinic, as well as by myself in the capacity of State Psychiatrist. Individual social studies on them were made. Information was obtained directly from their parents, as well as utilizing excellent information and studies made by the pre-sentence court investigators. Psychologic tests, involving their academic ability, their general intelligence and their emotional patterns, were carried out. Independent psychiatric studies were made by the Clinical Director of the Mental Hygiene Clinic, as well as by myself, and these were followed by conferences between the various examiners and myself.

It is obvious that this is a very complex problem, since it involves individuals from some of the better homes who have apparently had adequate opportunity for social training; since it involves individuals of better than average intelligence in every case; since by and large it involves individuals who appear to be, at least superficially, outgoing and socially inclined, and since most, if not all, of these young men went to a school which is considered to be a very good one. The problem is also complicated by the fact that in very few, if in any of these cases, is the monetary consideration an important factor and also because, in most, if not all the cases, the thrill or excitement involved in the predatory acts was an important factor.

Although the general conception of this entire situation has been that this was an organized gang, with definite leaders and definite plans, it was our finding that this was not at all true. The evidence indicates that the raids (if they may be called such) were spontaneous, were rarely, if ever, planned and indeed, even in the commission of them, there was resistance by some of the individuals involved. It should, also, be noted that some of the members of the group left whenever they felt like it and did not return, and that some of them returned later on. In only one case was there a claim made by any one of the individuals that pressure has been brought to bear on him to continue and in this particular case there was reason to doubt the veracity of the individual.

In attempting to classify these individuals with the thought of placing responsibility, we decide to establish three groups. The first group (covering the first five cases), included those individuals who had been more or less leaders (in terms of the greatest amount of involvement) and who would best have been expected to accept the responsibility for themselves, as well as for some of the others. It was our feeling that these individuals could be expected to accept the responsibility for their acts. We felt, however, that in all but one or two cases, the individuals could be depended on to refrain from recidivistic activities.

The second group (covering the next two most seriously involved) contained those who were essentially followers, who needed the recognition and attention of their "leaders" in order to increase their own childlike sense of self-esteem.

The third group (covering the last four least seriously involved) included those who went out once or twice, who were more or less "sucked in" and who more or less "escaped" from the group immediately. Our suggestion for disposition have been based along these lines.

While it is not possible to generalize in evaluating personalities of eleven different individuals, there are some features which bear comment. First of all, these young men are all above average intelligence; most of them could be classified as high-average or superior. None of them, not even the "leaders," could be stated to have a satisfactory masculine identification (this, in spite of the fact that most of them took part in athletics). There was considerable evidence that the mothers, in most of these cases, were the dominant characters in the families and the fathers played secondary roles. In some of the cases, the fathers were either decidedly passive, too busy, or perhaps were disinterested. In some of them, the permissiveness of the parents in itself functioned as a sign of disinterest rather than as evidence of acceptance.

It is of interest to note that almost every member of the group spoke of being "bored" at school, and, at the same time, the teachers complained of the negative behavior of the individual. It would seem that in spite of the athletic program at school, these young men were not sufficiently challenged to keep their interest active in school and to challenge their better-than-average intelligence.

It would seem that the social stature of some of the families involved, together with the protective attitudes revealed by some of the mothers toward the individual involved, militated against early detection and prosecution by the Police.

It is my feeling that this group should be studied as a whole, as well as individually; that it should be followed by probation officers in an attempt to learn something which might be of value in the community in the future.

The majority of the judges of the Superior Court of New Castle County after careful analysis of the elaborate report of the court investigator and the report of the State Psychiatrist came to the following decision, that the first group of five boys should be sentenced to imprisonment for a three year term, but the execution of the sentences be suspended during the term thereof under adequate and strict conditions, the breach of which would automatically lift the suspension; and the boys of second and third groups should be granted probation under adequate and strict terms.

It is indeed of historical importance the expressed opinion of the three judges of the Superior Court which follows.

JUDGE CHARLES L. TERRY, JR.

"I think the past demeanor of these defendants, especially when considered collectively, vitally concerns the social well-being of every citizen in this state, for they represent a true cross section of the families of the little town, and, as such, are definite representatives of the society of that community in a broad and true sense; that is, the society which in its general aspects molds the images and enumerates the doctrines under which the people therein should live together.

"Breaking and entering with intention to commit larceny presents too complex a problem to be explained in a rule of thumb manner, especially so when the perpetrators of the crime are in their adolescent period of life.

"The court in its desire to determine the cause as to why this group of defendants misbehaved in such a fashion, ordered investigations in all of these cases. These investigations have been very thorough indeed. They have included interrogation of each defendant, of the police force of the little town, of the school authorities at this little town, of the parents of each defendant, and, in addition thereto, each defendant has been thoroughly psychoanalyzed by Dr. Tarumianz, our state psychiatrist.

"The results of these investigations, together with the findings by Dr. Tarumianz, have given to us and have been studied by us as an aid in reaching our final determination.

"Now, I assume that no child is born with a sense of value or ownership of property, and occasionally an appropriation of things belonging to another is to be expected from children, but when a boy or girl fails to grow out of this childish trait, then what was considered amusing or excused for one reason or another becomes stealing, and when such persists or is frequent it cannot be cast off with the comment that every child more or less steals.

"Following this reasoning a step farther, it is only logical to say that if a child does not grow out of this trait there must exist a reason for his delinquency in this respect. Thus in the present cases my attention is immediately focused upon (1) parental care, (2) environment outside of the home, and (3) the social norms of the community in which the child resides.

"A proper transition from adolescence into manhood is very difficult for any boy unless he learns to know himself and to understand his conflicts, his untamed aggressions, his feelings of frustration, his insecurities, his rejections. If these problems are present and undiscovered by the parents, or discovered by them and not corrected, they usually lead to neurotic behavior because satisfying compromises have not been worked out between the needs of the child and society's restrictions. Thus, a boy's behavior acceptable or not, satisfies some need of which the boy may or may not be fully conscious. Its fulfillment of course, will bring him satisfaction. Its frustration will end in pain.

"Many parents today consider that they have discharged their parental responsibilities if they have given to their child a decent home in which to live, good food, clothing, spending money, together with commands of both "do" and "don't," and are unable to understand why their child should ever misbehave or become delinquent in any fashion whatsoever.

"Such parents have provided some of the material needs to be sure but they have overlooked, it seems to me, the most essential element of parental care, which is an affectionate understanding compatible with the personality of the child. By this I mean that they have failed to obtain the trust and confidence of the child, and that, therefore, the child will not tell them of his frustrations and conflicts so that they may be corrected; thus, eliminating in the beginning future delinquency.

"A careful study of the reports in all of these cases bespeaks a definite lack of understanding on the part of the parents of the problems confronting their sons. The parents have never discovered the emotional disturbances which have confused their sons, and which in my thoughts are largely responsible for their delinquency in the present cases.

"Evironment, of course, is an element to be considered, but again a boy who truly understands himself usually avoids a situation that evidences a wrong course of conduct.

"Much has been written and said concerning the duty of society toward the youth of a community. Volumes could be written upon this subject, but I think it sufficient here to say that for society to have a definite part in the character building of youth in a community is worth much more than the construction of any physical attribute therein, and may these cases, not only to the citizens of this community, but to the citizens of the rest of this state as well, serve as a warning of the problems that lie ahead.

"I hope that I have made clear my point of view in relation to the care of youth. Otherwise, my determination as hereinafter stated could not serve its intended purpose.

"Unfortunately, those who want crime quickly eradicated impulsively demand incarceration of the offender without actual knowledge of the underlying circumstances associated with the commission of the crime.

"The difficulty in such a reasoning connotes a lack of appreciation of the true meaning of punishment. Punishment means a penalty imposed upon a person by law for the commission of a criminal act. This punishment in a vast majority of the cases may be invoked in any of three ways: (1) by incarceration, (2) by suspended sentence, or (3) by probation. In other words, the guilty person for a specified period must either be denied all rights to the society in which he lived, or returned to that society under strict and limited supervision.

"In order for the court to invoke the proper penalty in any given case a consideration must be given to the gravity of the offense involved and the manner in which the offense was committed, for the rehabilitation of the defendant should be the primary object of the court's responsibility. For instance, prior to a determination of sentence many observations should be made, including the character of the crime, the manner in which the crime was committed, the display of violence, if any, in the perpetration of the crime, the placing of the innocent person in fear, the age of the defendant, his past criminal record, if any, his attitude in reference to other, his personality, and, above all, if possible, an understanding of the real motive for the commission of the unlawful act.

"It is only after these observations have been made in any given case that the court is able to conclude what type and manner of sentence should be imposed upon the defendant in order to safeguard society and at the same time rehabilitate the defendant so that he may return either now or later to the society to which he formerly belonged and become a useful and law-abiding citizen.

"The investigations in the present cases unquestionably establish the absence of the use by any of these defendants of firearms, or other deadly weapons, and there is certainly no indication whatsover of a display of violence by any of them, or a showing of intimidation of others in the commission of the crimes. Also, there exists no facts as developed from the investigations that would indicate that these defendants operated as an organized gang; that they had a leader or that there were ever demands or threats made by any of them against one or more of the others for the commission of any of these crimes or the withdrawal of any defendants at any time.

"Further, the investigations clearly reveal that the police in this little town had reason to suspect and believe that many of these defendants were involved in the commission of some of these crimes as early as April, 1952, yet failed to adopt proper police practices by investigation and interrogation. Rather, they took the position that they would wait until they caught them in the act. This attitude resulted in the commission of other offenses from that date down until December, 1952. And further, the reports show that during the entire year of 1952 this community was alive with rumor relating to the involvement of many of these defendants in the commission of a considerable number of these crimes, yet nothing was ever done to attempt to curtail the unlawful action of any of them.

"It should be stated at this point that if the defendants had been charged with committing these offenses a year sooner and, in some instances, in point of time, less than a year, they could not have been charged with the violation of the criminal statutes herein involved. This would be so because of their age, that is, they would have been under the age of eighteen years, and could have only been charged with delinquency predicated upon incorrigibility, which is not a crime within the purview of legislative direction.

"Society should never exact from teenagers the bitterness that is occasioned by incarceration in our penitentiary unless they have previously had their day in court and a chance to rehabilitate themselves or unless in committing their offenses their conduct evidenced a display of violence. In the past I have deemed it my duty as a judge to incarcerate teenagers even upon their first appearance in court when their course of action in relation to the commission of their crimes demonstrated viciousness or intimidation of others, but when these circumstances were not present my approach has always been to endeavor to rehabilitate the teenager by means of probation without the rancorous effect which normally follows incarceration.

"I now reach the important question of what should be the type of penalty imposed upon these defendants. Should it be incarceration, or a suspended sentence or should it be probation? In approaching my determination I am mindful that the public condemnation already occasioned by each defendant, together with added disgrace by incarceration as to any or all of them, with nothing done to cure the underlying cause of their delinquency, would lead them to evermore unacceptable forms of behavior. To ignore delinquency or incorrigibility in youth is shortsighted and foolish, but to regard incarceration in prison as the sine qua non of treatment is hardly enlightened or mature.

"If I believe any of these defendants to be criminals at heart, or believed that any of them possessed that degree of viciousness of character that would symbolize them as menaces to the society in which they live, my conclusion would be to immediately remove them from society by incarceration. But I do not so believe. On the contrary, I do not find any of these defendants to be at all vicious in the sense of being dangerous persons. I do find, however, that by reason of neglect and being imbued with false standards of security they have somewhere along the line lost respect for themselves, their parents, the citizens of their community, and the law in general. They must be rehabilitated, if possible and in my opinion such can never be accomplished under the provisions of the thoroughly inadequate penal system that now prevails in this state.

"Delinquency is a social evil that stems from fundamental causes, the cure of which or the deterring expert of which cannot be found alone in the incarceration of any of these defendants. Each case, present and future, must be decided in the light of the facts and circumstances associated with that particular case.

"My conclusion in these cases is that six cases (of group two and three) should be granted probation under adequate and strict terms, the breach of which during the period of probation would result in immediate incarceration for a period in length of time to their term of probation; that five boys of the first group should be sentenced to imprisonment for a substantial term, but that the execution of the sentences be suspended during the term thereof under adequate and strict conditions, the breach of which would automatically lift the suspension and the defendants would then be immediately incorcerated for a period equal in length of time to the term of sentence."

JUDGE DANIEL L. HERMANN

"Except for three who are 19 years of age, each of the defendants before the court is now 18 years of age. Many of the offenses here involved were committed when the defendants were 17 years old and many of the offenses occurred almost a year ago. None of the defendants has a prior criminal record. None of the defendants is charged with any act of personal force, intimidation, or violence.

"I concur with Judge Terry that the five defendants of group two and three should be granted probation because each of those defendants, as I see it, is charged with but one offense worthy of consideration by this court at this time. Probation is the ordinary disposition in any such case.

"I concur with Judge Terry that another defendant should have a suspended sentence because he was a "follower," in the nature of an accessory, and subject to certain physical defects and mental maladjustments which commend him for suspended sentence.

"I concur as to another defendant because of the eight offenses charged against him, six offenses were committed during one evening more than eight months ago. This defendant repented almost immediately, terminated all contact with other members of the group after that evening, and he is charged with no offense thereafter.

"I concur with Judge Terry as to one defendant because he was the youngest of the group, led and induced by others, and he enjoys an otherwise good reputation, in the community in which he lives, for respect for law and order and the rights of others.

"I am of the opinion that three defendants of the first group should be punished by incarceration. One has pleaded guilty to 18 offenses, another to 20 offenses and another to 14 offenses. They dominated the group and they taught others evil ways. They have demonstrated an anti-social attitude and a fundamental disregard for law, order, and law enforcement which, in my opinion, justifies a punishment greater than that involved in suspended sentence and probation.

"But I find no penal or correctional institution in the state to which I am willing to commit an 18-year-old boy who has no prior criminal record and who is not charged with any act of violence. Ferris School is not available for boys over 18 years. I do not feel that justice would be done if these defendants were committed to the County Workhouse where there is no real segregation of prisoners, or rehabilitation program for young offenders and where these minors would come into contact and mingle with hardened repeaters, homosexuals, drug addicts, vagrants, habitual drunkards, rapists, murderers, and felons of every type and nature.

"According to our concepts and philosophy, the rationale of punishment for crime includes the theory that punishment of an offender is a deterrent to others and a preventive of repetition by the offender. I am fully aware that other teen-agers may be watching these cases with calculating eyes. I am not unmindful that, while rehabilitation of a defendant is always a primary concern of the court, there is a companion duty which this court may never overlook—and that is the protection of society and the welfare of the public.

"Unfortunately, however, this court has not been furnished the machinery of justice for cases of this kind. We do not have a young adult reformatory or a separate institution equipped for the first offender and the juvenile delinquent over 18 years of age.

"I am convinced that commitment of these boys to the county workhouse would, in all probability, do far more harm than good. There being no prior criminal records or acts of violence. I am not willing that this should happen for the sake of attempting to deter others from like offenses. In the absence of a suitable place for incarceration, I am of the opinion that we have no alternative but to suspend the execution of sentence at this time and to impose strict conditions of probation.

"For these reasons, I concur with Judge Terry as to suspended sentences and probation for three above mentioned boys."

Judge Caleb R. Layton III

"I am forced to dissent to some extent from the conclusions reached by Judges Terry and Herrmann. I am able to agree that eight of these defendants for various good reasons should either be given suspended sentences or probation upon such terms as we will later lay down.

"But I cannot agree that the defendants, three boys of the first group should be given suspended sentences. I think they should be committed to jail. They were the tacit leaders of this gang. For a year, they have committed a series of crimes and acts of vandalism in and around this county and in nearby Maryland and Pennsylvania. Between them, acting singly or in concert with others, they have pleaded guilty to the commission of 19 misdemeanors and 33 felonies over a period of eight calendar months. And one has since admitted to committing 13 additional crimes which he concealed when he was originally examined by the probation officers.

"For all I know they may have committed many others which will never be brought to light.

"But this impressive number of criminal offenses is not all. They were a highly disruptive influence in school, a source of continual trouble to the town police and in general behaved with arrogance and a complete disrespect for law and order. Two boys of the first group defaced the paint on the automobile of a schoolteacher causing serious damage. In a fit of anger, because one of them got a parking ticket, they got an axe and smashed the meter. They smashed windows out of the greenhouse of one town police man and threw a milk bottle through the window of the home of another all because one of them had been arrested and fined for speeding.

"Finally, they shot the face out of the clock of the town hall in the little town with a .22 rifle. This is sheer vandalism.

"The majority of this court takes the view that the rehabilitation of these boys is paramount and that the only way to rehabilitate them is by probation, for, in the final analysis, a suspended sentence amounts to little more than probation. I have grave fear that the majority in their zeal to rescue boys such as these three from the unfortunate consequences of their acts, have failed to realize that many more than these three may be attracted into a prolonged series of crimes by the knowledge that if they are caught nothing more serious than probation will result.

"Nor am I convinced that these boys would be ruined by a jail sentence. If they have real stuff in them, they would serve their sentences and come out with a determination to be useful citizens and if they don't have real stuff they would never be saved by probation.

"In my judgment, the only way to treat three such culprits as these is to send them to jail and thus demonstrate to them and to other young persons potentially inclined to crime that society will not tolerate such conduct.

"Such are my reasons for this dissent."

UTERI (HUMAN) CANCER FREE FOLLOWING TWO TO TEN YEARS OF WEEKLY LARGE DOSES OF ESTRADIOL BENZOATE

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Twenty years ago the profession was attempting to alleviate the symptoms of estrogenic deficiency with 15 to 25 I. U. (3 to 5 R. U.) of estrone. Twenty years ago Progynon B (estradiol benzoate) 10,000 R. U. (1.6 mg.) dissolved in 1 cc. of oil was made available to the author for clinical research by the Schering Corporation. Since 1932 we have used Progynon B in increasing dosage in treating the major estrogenic deficiency syndromes; of the menopause, of pituitary basophilism in females[1] and in migraine in the female and the male.[2]

Our initial communication on the efficiency and dependability of Progynon B and the necessity of administering 2,000 R. U. to 20,000 R. U. a dosage of estradiol benzoate which was commensurate with the degree of a true estrogenic deficiency was first reported in 1934.[3] At that time and for some years later our therapeutic viewpoint was considered extreme, incautious and unscientific. The soundness of our therapeutic viewpoint of twenty years ago has been substantiated in full; because today the strength of the commercially available natural estrogenic preparations is of the dosage range used and recommended by the author twenty years ago.

In the interim the formidable scepter of fear of inducing cancer by the prolonged administration of estrogens has been held over the head of those few clinicians who dared treat the estrogenic deficient human female with repeated large doses of natural estrogens and for prolonged periods of time.

The *single* purpose of this communication is to record our clinical experiences, therapeutic and pathologic opinion and our conclusion that the administration of large dosage of the natural estrogens in the form of estradiol benzoate to estrogenic deficient human females every three to seven days for periods of two years, five years, ten years, and twenty years *has not produced cancer* in the estrogenic sensitive tissues of the primary and secondary genital organs in any one of the very large number of human females treated by the author during a period of twenty years.

Administration of the natural estrogens has been started during the early menopausal, menopausal or late post menopausal years, continued as required; the dosage of natural estrogens administered and the duration of therapy has been regulated by the acuity or chronicity of the symptomatic state.

We must emphasize that our opinion concerning the non-carcinogenetic activity of estrogen applies *exclusively* to the administration of the natural estrogens and particularly the estradiol estrogens. Our opinion does not include the synthetic chemicals possessing estrogenic effects. The source of these synthetized estrogens and the lack of a known human metabolic mechanism to inactivate the synthetic estrogenic chemicals has caused the author to critically restrict the clinical use of the synthetic estrogenic chemicals such as stilbestrol to clinical conditions requiring active inhibition of glandular function as in the hypersexual male[4] and non-tumorous adrenal cortical syndromes.

The main reasons for our confidence in the non-carcinogenetic action of the natural estrogens stemmed from definite premises; (a) The natural estrogens are humanly produced chemicals and the human body possesses a normal metabolic mechanism to convert estradiol to ketohydroxyestrone and trihydroyestrone and eliminate these products. Further, the kidneys eliminate these identifiable natural estrogenic products in the urine and thus prevent excessive storage in the body of its estrogens. (b) The human ovary produces estradiol in a physiological and functional quantitative basis and the concentration of estradiol in the circulating blood is maintained according to the age period of the human female. Further, during the fertility period of the human female there is a lunar, cyclical quantitative variation of estrogen production by the ovary.

The final and clinching fact against the fear of inducing cancer in the human female by the administration of natural estrogens in large dosage is the normal human phenomena of hyperestrogenemia which occurs during pregnancy. This hyperestrogenic state is present during a period of time when the primary and accessory genital organs (where malignancy of the human female is most commonly found) are in a very active state of cellular activity and cellular reproduction. Furthermore, the fetus in its embryonic stage and subsequently its rapidly developing tissue mass are exposed to the hyperestrogenic maternal blood. It is highly improbable that with present day methods of administration of natural estrogens it is possible to reach the normal levels of estrogens circulating in the blood during the second and third trimester of gestation.

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It is evident then that human female tissues possess an inherent natural ability to respond normally and physiologically to very wide extremes of estrogenic levels in the blood; namely from the low levels of prepuberty through the cyclic levels of maturity to the high levels of gestation.

In view of this normal functional capacity of the human female tissues to react to high concentrations of natural estrogens and without malignant end effects occurring in estrogen sensitive tissues of the primary and secondary genital structures; it appeared reasonable to infer that repeated administration of high dosages of natural estradiol preparation would be equally harmless if administered when a functional estrognic deficiency state existed in the human female.[5] That a malignant end effect would result from administering frequent high dosages of natural estrogens for a prolonged period of time was contrary to established data when one considered the thousands of females in whom one pregnancy after another had occurred during five year periods, ten year periods or more than ten year periods. The individual tissues of the female during their gestations tolerated and without carcinoma developing in the genital structures, successive, long periods of exposure to very high levels of natural estrogenic stimulation.

It was a clinical incident which was associated with successive pregnancies in two female migraine patients which gave us the key to the solution of their therapeutic problem.

Many migrainous females have obtained relief of their migraine attacks after the second or third month of gestation and are free of migraine attack during the remainder of their pregnancy. Recurrence of the migraine attacks appear shortly after delivery or during or after the postpartum period. In a few instances patients had repeated pregnancies to secure relief of their migraine. In this group of migraine patients we have procured partial and later complete relief of the recurring postpartum migraine attacks by the hypodermic administration of from 30,000 to 90,000 R. U. of estradiol benzoate at the onset of the migraine attack. Therapy is maintained at 30,000 R. U. to 50,000 R. U. of estradiol benzoate daily to every third to fifth day over varying periods of time to maintain suppression of the chronic or recurring severe migraine attacks. In a clinically established case of severe chronic migraine and depression we administered during the acute onset of a severe migraine attack a total daily dosage of 270,000 R. U. of Progynon B, 90,000 R. U. every eight hours; and a seven day total of 500,000 R. U. of Progynon B.

The acute and severe migraine attacks we are considering remain in their severe and incapacitating migrainous state for from two to seven days if untreated with natural estrogens or are treated with heavy sedation.

These migraine patients have not responded to any other accredited therapeutic regime (including gynergen) advocated for migraine. In brief, the high dosage of natural estrogenic therapy administered has been one of necessity and used to combat the severe type of migraine attacks, and to relieve the depressive mental state of the patient; who often fears for her ability to weather future attacks. Not infrequently this type patient has spoken of suicidal intentions.

Since all other therapies are ineffective in this particular group of severe migrainous female patients, we have been required, following the initial high dosage natural estrogenic therapeutic regime, to maintain these migraine patients under frequent hypodermic administration of what is considered excessively high dosage of natural estrogens for periods from two to twenty years.

The natural estrogen administered has been

Progynon B (estradiol benzoate) and has been administered in doses of from 30,000 to 60,000 R. U. weekly or twice weekly according to the individual dose requirement.

The maintenance dosage of estradiol benzoate administered has to be individually determined for each migraine patient. The frequency of administration is also individually determined. This variability in the dosage and frequency requirements of estradiol benzoate of each female migraine patient is determined by various factors: (a) The severity and acuity of the migraine attacks experienced by the patient and the initial dosage of natural estrogen required for symptomatic control. (b) The incidence of the recurrence of the migraine attacks. (c) We have determined by laboratory assays that there are females who have a metabolic mechanism which rapidly inactivates the administered natural estrogens. Thus, these migraine patients require a dosage and frequency of administration of natural estrogens much greater than that which is indicated by the clinical aspects of their cases.

Hysterectomy was required during these prolonged periods of frequent high dosages of estradiol benzoate therapy in only six of the large group of estrogenic deficient and migraine patients treated during this twenty year period.

The hysterectomy was required basically for uterine pathology which pre-existed and was unrelated etiologically to the estrogenic therapy. The uterine pathology, fibroids, polyps, fibrotic changes and abnormal uterine bleeding are common to the age period of our patients. It is acknowledged that estrogenic therapy and the resultant hyperplastic endometrium possibly aggravate the bleeding factor.

We now have received the pathological reports of the uteri of six patients who, prior to hysterectomy, have been administered, hypodermically, for prolonged periods of time, frequent and large dosage of natural estrogens in the form of estradiol benzoate.

Since this is essentially a report of the uterine pathological studies presented to the author, only the essential details of the patient's clinical history, the natural estrognic therapy, pre and post hysterectomy; the pathological studies of the uteri, the absence of malignancy in these uteri are included in this communication.

Case 1—Female, present age 44 years, married, multipara, menses regular, excessive. Uterus—fibroids. Enlarged to above pelvic brim. Diagnosis: Severe chronic migraine. Estrogenic deficiency syndrome. Acute depression. Duration: Migraine syndrome since age 12 years. Attacks are now appearing more frequently, increasing in severity and are incapacitating (severe cephalalgia, nausea, vomiting). Mental depression in a progressive state. Therapy: Initial dosage of 20,000 R. U. of Progynon B every 3 to 5 days produced partial relief of the migraine attack, but the acute symptoms would recur in twenty-four hours. Ultimately, 50,000 R. U. of Prognon B every 3 to 5 days was required for effective relief and suppression of the attacks of migraine and depression.

Estradiol benzoate therapy had been maintained for two years and eight months pre hysterectomy.

In view of the need of continued estrogenic therapy to control the severe migraine and depression, a hysterectomy was performed on December 7, 1951 to relieve the chronic pelvic pain and eliminate the occasional periods of metrorrhagia which occurred prior to hysterectomy.

Pathologic report of the uterus removed from Case 1. "The fundus is globular and measures 7.0 cm. in diameter. The cervic measures 5.0 x 2.5 cm. The pars vaginalis does not appear abnormal. The endocervical canal and the endometrial cavity are patent. The endometrium is hemorrhagic and measures 5.0 mm. in thickness. In one corner there is a soft polyp measuring 1.5 cm. in length by 0.8 cm. in diameter. In one part of the myometrium there is a fibroid measuring 2.5 cm. in diameter. Endometrial polyp. Leiomyoma uteri."

Case 2—Female, married, nulliparous, age 42 years, menses regular, scant and from one to three days in duration. Diagnosis: Chronic, severe migraine; recurrent and incapacitating (severe cephalalgia, nausea, vomiting). Estrogenic deficiency syndrome. Depression. Both the migraine and depression were in a progressive phase. Estradiol Benzoate therapy prehysterectomy: For the past ten years, 10,000 R. U. to 20,000 R. U. of Progynon B had been administered every three to five days to control her migrainous and depressive state. Hysterectomy was performed on January 20, 1953 because of retroverted uterus and adhesions (operation for same in 1940) and occasional episodes of uterine bleeding.

Pathologic report of Case 2. "Uterus. The myometrium is 2 cm. thick. The endometrium has been recently curetted and in addition contains an endometrial polyp in the fundus 1.5 x 0.8 x 0.3 cm. The endometrium is in the proliferative stage and shows some evidence of hyperplasia. The polyp is composed of similar tissue. Diagnosis: Mildly hyperplastic proliferative endometrium; endometrial polyp."

Case 3—Female, married, multiparous, present age 54 years. Diagnosis: Severe, chronic migraine since 1937, incapacitating (severe cephalalgia, nausea, vomiting). Estrogenic deficiency syndrome. Depression. Menses regular and profuse with Premarin therapy. Secondary anemia. Uterus normal. Colitis. Argyria. Hypotension. The initial dose of 20,000 R. U. of Prognnon B proved ineffective and as in Case 1 ultimately 50,000 R. U. of Progynon B every third to fifth day was required to relieve the chronic and recurrent severe migraine attacks which persisted in an incapacitating form for two to three days duration. As in Case 1 the total amount of natural estrogenic therapy per month activated the endometrium of the uterus to a hyperplastic (estrogenic) state and recurrent periods of uterine bleeding occurred. Cessation of the natural estrogenic therapy to control uterine bleeding was followed promptly by a recurrence of the prolonged severe, acute and incapacitating migraine attacks. This patient had received all other therapies, recognized and experimental, without relieving her migraine attacks. Natural estrogenic therapy had been found to be the only therapy which effectively relieved her migraine attacks, suppressed their recurrence and permitted her to pursue a reasonably normal life.

In view of these circumstances a gynecological consultation was requested. The report follows: "The uterus was normal in size and position and I was unable to detect any abnormality in either adnexal area. In view of her prolonged bleeding and apparent necessity of the administration of large doses of estrogenic hormone, I believe that the uterus should be removed before the endometrium is over-stimulated for too long a time." A hysterectomy was performed in order that the required high dosage of natural estrogens could be given over an extended period of time.

The pathologic report of the uterus removed from this patient after 2½ years of intensive natural estrogenic therapy showed no signs of malignancy.

Therapy is being maintained post hysterectomy. 50,000 R. U. of estradiol benzoate is being administered every third to fifth day with excellent control of the complex clinical syndrome.

Case 4—Female, married, multiparous, present age 50 years. Left coophorectomy at age 29 years. Menses: regular, four days duration, diminished amount. Diagnosis: Chronic, incapacitating migraine. Estrogenic deficiency syndrome. Depression. Cystic right ovary. Enlarged uterus with fibroids. Duration of migraine four years.

The clinical course and therapeutic program of Case 4 compares in the essential details with those of Cases 1 and 3. Because of the required estrogenic therapy to control the estrogenic deficiency syndrome, migraine and severe depression, and the independent indications for a hysterectomy the patient was submitted to hysterectomy on July 14, 1942. Estradiol benzoate therapy prehysterectomy: 30,000 R. U. to 60,000 R. U. twice a week.

Pathologic report. "Fibrotic uterus — shows no evidence of malignancy."

This patient requires 30,000 R. U. of Progynon B once or twice a week, since her hysterectomy over ten years ago, to maintain control of her migraine and depression.

Case 5—Female, married, multiparus, present age 53 years. Menses deficient. Migraine. Angioneurotic edema of nasal and pharyngeal and facial areas. Depression. Estrogenic deficiency syndrome.

This patient was administered 500,000 R. U. of estradiol benzoate in seven days during one of her acute attacks. During the next two acute attacks corresponding total amounts were administered. Maximal daily dosage 270,000 R. U. of estradiol benzoate, 90,000 R. U. every eight hours.

After control of the acute attacks was established she was maintained on 10,000 R. U. to 30,000 R. U. two to three times a week. Hysterectomy was performed for preexisting fibroid of the uterus and metrorrhagia. Duration of estradiol benzoate therapy prehysterectomy—two years.

Pathologic report. No evidence of malignancy found in the uterus.

The patient reported that estradiol benzoate therapy was maintained for a period of five years after hysterectomy and that her condition was excellent.

Case 6—Female, married, nulliparous, present age 58 years. Hyperthyroidism — thyroidectomy in 1934. Menses regular but deficient in amount and duration. Estrogenic deficiency since 1932. Uterus: small, fibroid present. Initially the migraine attack appeared one day before the onset of menses, lasted forty-eight hours and incapacitating (severe cephalalgia, nausea, vomiting).

This patient has been administered natural estrogenic therapy by the author for relief of her estrogenic deficiency and migraine since 1932. In 1940 the premenstrual migraine attacks were complicated by the onset of angioneurotic edema. Edema first occurred in the gingival mucosa of the lower jaw and produced severe episodes of pain in the molar teeth. Dental x-rays were negative. The true cause of the dental pain was not apparent until the angioneuroti edema extended into the lateral, basal region of the tongue and the soft palate. A few months later the angioneurotic edema involved the vocal cords and frequently produced severe obstruction of the breathing and cyanosis. The edematous attacks occur suddenly and persist for one or more days. The migraine and angioneurotic edema attacks occurred simultaneously every seven to ten days. During the past five years the angioneurotic edema attacks are localized chiefly to the eyelids and facies. In a few hours after the onset of the angioneurotic edema the patient looks as if she had been struck in the face with a baseball bat.

The angioneurotic edema is not due to oil sensitization. It has not responded to antihistamines or salt depletion therapy. Hypertension is present, thus adrenalin is contraindicated.

In 1942 a hysterectomy was required because of the fibroids of the uterus and menorrhagia. Since the attacks of the edema of the vocal cords and the obstructive breathing resulting therefrom could not be predicted, preparation of this patient for surgery was difficult. Her attacks of migraine and simultaneous attacks of engioneurotic edema involving the vocal cords were relieved by the administration of 20,000 R. U. of Progynon B. Accordingly as part of her preparation for abdominal surgery, she was administered preoperatively 20,000 R. U. of Progynon B every two days for three doses and post operatively daily for seven days and then three more injections every two days. No attacks of migraine or angioneurotic edema occurred during three weeks of increased natural estrogenic therapy.

Natural estrogenic therapy prehysterectomy: Ten years of weekly injections of 20,000 R. U. to 30,000 R. U. of estradiol benzoate.

Pathologic report stated a fundal fibroid was present. No malignancy was found.

This patient continued receiving 30,000 R. U. of Progynon B weekly post hysterectomy and has been free from severe migraine attacks. The angionuerotic edema attacks occur infrequently. Five years ago the angioneurotic edema extended to the facies and eyelids; the eyelids are invaded to a degree that the eyes are hardly visible; 60,000 R. U. of Progynon B are now required weekly to suppress these angioneurotic edema and migraine attacks. Occasionally attacks of angioneurotic edema occur and injection of 60,000 R. U. of Progynon B twice a week is required.

No evidence of malignancy has developed in this patient after twenty years of progressively increased high dosage (maximal 60,000 R.U. of estradiol benzoate) of natural estrogenic therapy administered weekly.

All the six patients included in this report are living and well and to date have exhibited no signs of malignancy.

Discussion

In this communication we are submitting the cancer negative pathologic reports of the uteri removed by hysterectomy from patients who have been administered, by the author, large single doses of natural estrogens weekly or twice a week for periods up to ten years. The patients reported represent an unusually severe form of estrogenic deficiency in which the major symptom requiring the prolonged and high dosage natural estrogenic therapy is very fortunately a relatively infrequent complication of the menopausal ages.

It is not within the scope of this report of the pathologic findings of natural estrogenic treated human uteri to discuss the modus operandi of the natural estrogenic therapy administered to this group of patients; or the necessity for prolonged natural estrogenic therapy. That subject alone is a major presentation.

We can state, however, that in all patients treated with high doses of natural estrogens every effort has been utilized, and at all times, to limit the individual dosage of estradiol benzoate administered to each patient and to check the therapeutic effects obtained objectively (breast and vaginal response) and subjectively when adequate estradiol benzoate therapy procured relief or control of the major symptoms.

We have used deception by administering corresponding quantities of unmedicated oil; we have reduced the therapeutically effective dose of estradiol benzoate administered and found it ineffective therapy; we and the referring physicians particularly, have administered for comparative therapeutic study the less potent natural estrone in the same unit dosage and found it was ineffective therapy; progesterone, testosterone propionate and the various synthetic chemical estrogens in oil have been found to be ineffective therapy. The antihistamines gave negative results in the angioneurotic edema cases.

The single objective of this report is to present authentic laboratory (pathologic) evidence confirming our belief which was predicated on normal estrogenic phenomena known to occur in the human female, that the frequent administration of estradiol benzoate in very high dosage for a period of years to the estrogenic deficient female would not produce cancerous changes in the normally estrogenic sensitive tissues of the uterus. Further, we have not observed any evidence of malignant changes in any of the primary or secondary genital structures of any estrogenic deficiency female similarly treated.

This group of patients respond to only one therapy; namely high dosage of a standardized and dependable estradiol benzoate (Progynon B)* preparation.

The long term, frequent, high dosage natural estrogens (estradiol benzoate) therapy administered to this group of migraine patients is a therapy that has been forced upon us by the acute and severe clinical circumstances existing in the individual estrogenic deficient patient and their failure to respond to any other type of therapy. The patient's viewpoint concerning our method of therapy is that she had reached an intolerable and almost incapacitated state of physical health and was mentally depressed; thus the inconveniences of frequent hypodermic therapy over a period of years is negligible because it procured a state of physical and mental well being and control of her symptoms.

Conclusions

For a period of twenty years the author has been required to resort to the frequent hypodermic administration of large doses, 20,000 R. U. to 60,000 R. U., of natural estrogens in the form of estradiol benzoate, to a group of estrogenic deficiency patients in order to therapeutically control acute migraine attacks which are recurrent or chronic in type. Precipitant, acute attacks of painful angioneurotic edema were a complication in two cases.

In this group of patients the natural estrogenic therapy has been administered in individual cases from two to twenty years in order to maintain control of the acute objective symptoms. The subjective symptoms of the estrogenic deficiency were simultaneously corrected.

A hysterectomy was performed following ten years of frequent high dosage estradiol benzoate (natural estrogen) therapy in two patients; and following two or more years of frequent high dosage estradiol benzoate therapy in three patients and ten months of frequent high dosage estradiol benzoate therapy in the sixth patient of this group.

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*Supplied in special ampules (30,000 R. U. per 1cc) by Schering Corporation. Courtesy of Drs. Gregory Stragnell, Edwin Schwenk, Max Gilbert, Edward Henderson.

The pathologic examination of all the removed uteri of the six patients who had received prolonged and frequent administration of high dosages of estradiol benzoate for periods up to ten years *failed to reveal any evidence of malignancy.*

The high dosage of estradiol benzoate therapy has been maintained post-hysterectomy by the author in five patients and in two of the group of five patients for ten years. All six patients treated post hysterectomy with the previous or large doses of estradiol benzoate have failed to develop evidence of malignancy.

A much larger group of estrogenic deficiency patients not submitted to hysterectomy have received estradiol benzoate therapy for periods of years and have not developed evidence of malignancy.

Therefore on the basis of a twenty year clinical and therapeutic experience with high dosage estradiol benzoate therapy frequently administered to estrogenic deficient females for periods of two years to twenty years, our opinion is that we have not induced cancer in any of our patients so treated.

Our final conclusion is that the natural estrogen preparation, estradiol benzoate, can be administered indefinitely to control the estrogen deficiency syndrome of the female and without fear of inducing cancer.

Cancer of the primary and secondary genital organs has a calculated incidence of occurrence during the respective age periods of the female; therefore the significance of this established decade incidence of cancer must be evaluated in any single case report which expresses an opinion opposed to the above conclusion of the relationship of administered natural estrogens to the development of cancer in the genital structures of the human female.

The physician administering the natural estrogen to the estrogenic deficiency female must at all times be mindful of the established cancer incidence during the respective decade of female life; and be cancer conscious even though he has no fear of inducing cancer by the administration of natural estrogens.

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CLINICAL EXPERIENCES WITH TRANSORBITAL LEUCOTOMY

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Psychosurgical therapy has now been in use for approximately 15 years. Its therapeutic indications, physiological basis and clinical effectiveness are generally clarified although a number of pertinent problems have remained unsolved. This explains the variety of modifications of the classical prefrontal lobotomy which have been developed during the last few years. These procedures aim to increase the therapeutic effectiveness while reducing physical and psychological ill-effects subsequent to lobotomy. All of these operations have in common disadvantages which most psychiatric hospitals find it difficult to cope with. They require the services of a neurosurgical team, are time-consuming, expensive and cannot be followed up without abundance of nursing care.

The introduction of the simple technique known as transorbital leucotomy promised to meet the needs of most psychiatric services. The performance of the leucotomy requires only a few minutes and can be carried out during the moments of unconsciousness produced by electroshock coma. Thus, as many as 15 patients can be operated within one to two hours. The patients are ambulatory within one to two days and require no particular care after the post-operative period of observation.

This report concerns a series of 104 patients on whom transorbital leucotomies were performed in 1951 and 1952. While prefrontal lobotomies had been performed at the

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Delaware State Hospital since 1938, a decision in favor of the newer method was made in the desire to study the comparative effectiveness of the leucotomy as well as to give the advantage of psychosurgery to the greatest possible number of patients.

THERAPEUTIC INDICATIONS

Psychosurgery has been applied to a wide variety of mental disorders. The criterion most frequently used has been the unfavorable prognosis in a given case mostly based on the unresponsiveness to other treatments. Chronicity of disorders and frequency of relapses have been decisive factors in favor of surgery. Certain psychopathological characteristics such as morbid self-concern, anguish, intensive obsessiveness and affective explosiveness (assaultiveness, destructiveness) were related to frontal lobe function and thought most likely to diminish subsequent to psychosurgery.

Our patients were selected because of an unfavorable course of illness. Chronicity ranged from a few to 26 years. In the majority of these cases duration of illness came close to length of hospitalization. The great majority had adequate but unsuccessful convulsive or insulin-coma therapy, or a combination of both. The decision for the operation rested in all instances on the conviction that all other types of treatments had met with failure. The aim in many chronic cases was to ameliorate destructive and agitated modes of behavior in order to facilitate a better hospital adjustment.

All transorbital leucotomies were performed by Dr. Mathew Moore, Philadelphia, who used the transorbital leucotome which he devised. A standard routine of operative and post-operative management was organized for all groups. Eight groups ranging from 11 to 16 patients were operated between March, 1951 and January, 1952. Each group had intensive rehabilitative therapy for several months. Courses of 15 to 20 electroconvulsive treatments were given to patients who remained post-operatively unchanged since a greater post-operative effectiveness had been reported by others (but was not confirmed in our observations).

Table 1 illustrates the diagnostic composition of the series.

Table 1
Total Distribution of Diagnostic Groups

Schizophrenia:		
Catatonic	18	
Paranoid	36	
Hebephrenic	18	
Simple	4	
Mixed	10	
Juvenile	2	88
Paranoid Condition:		3
Affective Disorders:		
Depressed	1	
Manic	1	
Mixed	2	4
Involutional Psychosis:		
Melancholia	1	
Paranoid	1	2
Psychoneuroses:		
Obsessive-Compulsive	1	
Conversion Hysteria	1	2
Mental Deficiency with Psychosis:		5
Total:		104

OUTCOME

The evaluation of the effectiveness of any treatment applied to mental disorders depends on the critical awareness of individual and generic factors in each patient. These complicate the task of finding comparative criteria for groups. It is also imperative that one has a most thorough knowledge of patients' preoperative behavior patterns to be able to appraise post-operative changes. This means not only long-term observations but also familiarity with the patients' responsivity to various situations.

This study has the advantage of favorable observational circumstances which are quite unique in Delaware. This small state has only one psychiatric hospital for its population. All patients with mental disorders therefore were, are or are again under hospital observation. Follow-up studies of patients at home do not present the usual difficulties. I have observed and treated all patients for as long as 10 years prior to the operations.

The results are presented in terms of three categories: (1) at home, (2) improved, but still hospitalized, and (3) unchanged. Patients "at home" have shown sufficient improvement to live in a manner of which they were previously not capable. "Improved" denotes behavioral changes which enable patients to be transferred to better wards, to participate in occupational and recreational activities and to gain some measure of freedom from pathological self-concern. "Unchanged" represents therapeutic failure.

Table 2 shows the responses in relation to types of disorder.

Table 2
Responses

	Home	Improved	Unchanged	Relapsed	Dead
Schizophrenia:					
Catatonic	1	2	13	2	
Paranoid	13	4	16		3
Hebephrenic	3	3	12		
Simple	1		2	1	
Mixed	5	2	2	1	
Juvenile			2		
Paranoid Condition:	1		1	1	
Manic Depressive:		2	2		
Involutional Psychoses:		1		1	
Psychoneurosis:	1		1		
Psychosis with Mental Deficiency:		1	4		
	25	15	55	6	3

Total—104

Two patients died of post-operative cerebral hemorrhage (a mortality rate of 1.9%). Another patient died six months after the operation. There were no autopsies. Post-operative complications were negligible. Two patients have developed convulsive seizures since the time of operation. These seizures are easily controlled with medication. Undesirable personality changes are minimal and do not present the problems encountered after lobotomies.

Schizophrenic patients with paranoid and "mixed" patterns responded best. Catatonic patients who in the experience of others had done quite well, remained in most instances totally unchanged. The results with schizophrenics, by contrast, were much better than had been anticipated. The impact on affective disorders was limited to improvements. These cases, though few in number, had manifested all the characteristics which were expected to change favorably after frontal lobe surgery. One patient with a decompensated obsessive-compulsive disorder does well at present, is home and supports herself. The other patient, phobic, anxiety-ridden and subject to hysterical seizures has remained unchanged in spite of repeated leucotomy. The mentally deficient patients with agitated behavior disturbances remained, with the exception of one improvement, unchanged.

Three patients relapsed after a stay of 3, 4, and 6 months at home, while 3 other patients with good hospital improvement have since relapsed into their preoperative behavior patterns.

Repeat-operations were done on 9 patients who had remained unchanged. Two (schizophrenia, mixed type) changed favorably after the second operation and are now at home. Another patient (involutional psychosis) improved. The other 6 patients remained again unchanged.

COMMENT

The search for factors which could explain the reasons for success or failure of psychosurgical therapy is as fascinating as it is difficult. A thorough analysis of various factors and their possible significance cannot be offered here but will be presented in another publication. A few impressions, however, can be summed up.

Neither age nor duration of illness seem essential with regard to outcome. There is, however, evidence that patients whose span of illness transcends a decade respond less favorably. Any attempt to formulate definite responsivity correlations between pre-illness personalities, disorders or psychopathological syndromes remains unconvincing. Analysis of the patients in the unchanged group reveals the same distribution of characteristics as found in patients with good results. This fact demonstrates that no single theory of frontal lobe function with regard to psychopathology can claim general validity. Collective statistics have little to offer and only individual case studies promise more enlightment concerning the characteristics of prognostic validity.

There is evidence that onset and course of schizophrenic psychoses are of prognostic significance. Patients with sudden development of psychoses, and patterns, undulating between remissions and relapses, are more frequently represented in the favorable response groups. This, however, does not clarify matters but raises the question as to the specificity of operative results since patients with such a background have always known to have a better prognosis. This must also be kept in mind in view of the recent claim that patients, if operated as early as possible, respond better.

Psychological influences attributed to environmental changes (transfer from chronic to acute wards), intensive care and rehabilitative management, were the same for all patients. They, therefore, do not seem to contribute to an understanding of response varieties.

The beneficial results can be quite dramatic. Some of the patients who are now at home have again reached their pre-illness achievement level. The high rate of therapeutic failure indicates a need for a narrower range of applicability. There does not seem to be a justification for the assumption that transorbital leucotomy is generally effective in the management of resistive or chronic cases.

Summary

1. A total of 40 patients (or 38.4%) showed favorable responses. 25 patients (24.0%) are now at home.
2. 55 patients remained unchanged and 6 patients relapsed (58.7%).

PRISON — A VALUABLE ADJUNCT IN THE PSYCHOTHERAPY OF CHARACTER DISORDERS

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History tells us that the imprisonment of criminals has been regarded in terms of punishment throughout the ages. More recent history has considered the concept of prison as a corrective measure above and beyond the punitive aspect and various measures have been taken to provide vocational training, recreational and religious activities and, more recently, psychiatric treatment in order to prepare the prisoner for a better life in his prospective future. As a result, there has been some tendency to regard the punitive aspect of prison as a necessary evil.

The author is reporting two cases in which the punitive aspects played an important role in the psychothcrapeutic aramentarium in the treatment of character disorders.

Both cases, one adult female (A.B.) and one adult male (C.D.) had long histories of obtaining money under false pretenses, by writing bad checks. Both had been apprehended previously, both had had the experience of escaping punishment by having the checks made good by others; one (A.B.) had had previous psychotherapy by several different psychiatrists, at various times, and one (C.D.) han served several terms in prison on the same charges.

CASE 1. (A. B.)—White, female, married; aged 24 years. Intelligence quotient 90.

As noted above, she had repeatedly gotten into difficulty by writing worthless checks. These checks were particularly characterized by the fact that no effort at concealment had been made and that the merchandise she obtained had little useful value to her and for which, certainly, she had no great material need. She was also known to have purchased numerous items from itinerant salesmen and, after making the usual down-payments, had ignored that due for further installments, this in spite of the fact that her husband's salary had been garnisheed on previous occasions as a result of her activities.

Another interesting symptom was the fact that she would tell fantastic tales to almost anyone who would listen. These tales succeeded in bringing her much sympathy—to put off, temporarily, prosecution but nothing else.

Previous therapy had allayed much of her anxiety, but she had developed little, if any, insight.

After her last offense, she was sentenced to prison and a psychotherapeutic program was made available to her in the prison setting.

Her early history was one of extreme rejection by both parents who allegedly favored her younger brother (materially but not otherwise). Because her father was a serious alcoholic, both patient and her brother were, at one time, placed in a protective institution for a period of more than a year, a situation which was again regarded as an extreme rejection.

That Mrs. A.B. had some insight into the dynamics of her problem was indicated in her question and the early remarks as taken from her record, thus "Did I do this because of some unknown reason, or to hurt my husband, or myself?" "When I was seeing someone (psychiatrist), I always felt better and stayed out of trouble."

"My father broke my head once. I was in the hospital. He hung around my bed day and night. I was happy."

Later notes indicated that she had tremendous guilt feelings and wanted to be punished. Instead, she had been protected. Her husband had previously paid her bad debts and so protected her. On this last occasion she had actually resisted the idea of obtaining legal aid.

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She stated that since she had been in prison, she felt more secure and satisfied; that she had needed to be punished, altho she did not know why. She stated quite bluntly that being sent to prison was the best thing that had ever happened to her. She developed some insight into her excessive need to be loved and to have other people know that she was loved. She said, "When I was sick, I sent myself flowers, in mother's name, so that people would think she loved me." She also developed some insight into the guilt which she suffered in this conflict.

When last seen, 6 months after her release from prison, she was making a good adjustment. She had solved some of the problems which do not come within the scope of this paper; she was employed as a bookkeeper and was, interestingly, writing checks for her employer.

CASE 2. (C.D.)—White, male, divorced; Age 35. Intelligence quotient 129.

Like the previous case, this man was convicted of issuing worthless checks but was seen at his own request. Historical data, obtained from Mr. C.D., suggested that he came from an "average" home. He, also, spoke of having had difficulty early with "check writing" and of having had his bad checks made good.

He had not been in serious financial difficulty when he had gotten into difficulty and had always been able to obtain better-than-average jobs. However, he also felt the desire to live in luxury had motivated his predatory escapades. He had previously shown enough concern over his behavior to present himself at a neuropsychiatric clinic for examination, apparently in the hope that some organic cause for his behavior would be found. He had been married and his wife had been unfaithful and, so, they were divorced. Following this, he ran with a fast crowd when he felt lonely and down.

His background revealed a childhood dominated by mothers and grandmother's rather rigid religious interests, in which he was forced to participate, much against his will. He once wrote a bad check to retaliate and, because of his behavior, was sent away to live with relatives. Again he got into difficulty and was sent home.

He admitted that he had been pampered a good deal. He had had all the material things but had been quite lonely. He bribed children "from the wrong side of the tracks" and played with them, and envied them because they could bring their friends (including himself) into their homes. He couldn't bring "these kids" into his own home because his grandmother objected.

He became hostile and insecure. He expressed considerable self-doubt during therapy, and spoke particularly of his self-doubt in the sexual areas. Essentially he found his world dominated by women, with men carrying out the decisions the women made.

When father once attacked him viciously, his mother pulled father away, but he still felt mother was responsible for the situation. He resented her domination of himself and of father. He expressed it thus: "All she has to do is mention church and wild horses couldn't drag me there." Yet, he has revealed his ambivalence and his wish to be dependent on women, too. He preferred "strong women who would do things for him." He spent large amounts of money on them and would rush them as far as the altar; yet, invariably, when they accepted his advances, he usually became involved with the police and escaped from the responsibilities of marriage by escaping into prison.

His feelings again were that his mother and grandmother had dominated him, had robbed him of his masculinity, had made a sissy of him. He could become interested in a "strong woman" who would act as a buffer between himself and other women, but he could not run the risk of again being dominated. He wanted to be dependent, not responsible. Writing a check was a way of having something given to him without his working for it; it enabled him to be supported by others. The fact that his mother made good his checks served him the double purpose of obtaining revenge on his mother and, at the same time, forcing her to accept responsibility for him.

SUMMARY

In the case of A.B., the patient sought punishment for unconscious guilt feelings which were related to her unconscious wish to be loved by her father and to a denial of her hatred for her mother. Although it is possible that the conflict could have been worked out by prolonged psychotherapy, it is felt that the short period of imprisonment, together with the recognition she obtained there through her association with the prison personnel, shortened the period of her therapy immeasureably. Practical consideration would have made prolonged therapy impractical.

In the case of C.D., the patient developed some insight into the nature of his problem. His use of the prison, however, was seen as clearly related to the concept of punishment and he felt more annoyed than punished. His insight was intellectual and apparently not real.

He could more clearly be diagnosed as a psychopath. Rumor has it that he is again in trouble.

ALCOHOLISM AND THROMBOSIS OF THE INTERNAL CAROTID ARTERY

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On an active treatment service for chronic alcoholism, with an annual admission and readmission rate of 250, the occurrence of transient neurological disturbances is not infrequent. While many alcoholic patients are admitted in a state of sobriety, it is more usual that at the time of their admission these men and women are in a state of marked physical debility and malnutrition. Generally, they have reached that state of helplessness which follows protracted periods of heavy alcohol indulgence. The occurrence, therefore, of disturbances of consciousness, severe tremors, convulsions and a wide variation from normal in routine neurological examinations may be expected. When such neurological and psychiatric abnormalities occur, patients are kept longer under active medical observation in a hospital setting and additional studies are taken from the clinical and laboratory standpoint to eliminate the possibility of chronic systemic disease, intracranial tumor or other neurological syndromes. However, when these neurological manifestations tend to disappear rather rapidly with the general improvement of the patient under a program of rest, vitamin therapy and improved nutrition, these disturbances are usually attributed to the toxic effects of excessive alcoholism.

The routine procedure on the Alcoholic Service following the admission of a patient includes medical and neurological examination, appropriate laboratory tests, x-rays of skull and chest and, when it seems clinically indicated, EEG and spinal fluid examination and whatever specialists' examinations are felt necessary by the attending physician.

The necessity of further investigative procedures in those cases of chronic alcoholism which manifest transient hemiparesis, aphasia or apraxia, however fleeting, sensorial defects of the cortical type or convulsions, whether Jacksonian or grand mal in character, should have the advantage of diagnostic arteriography to rule out the possibility of thrombosis of the internal carotid artery.

The variety of signs and symptoms resulting from thrombosis of the internal carotid artery resemble in type and manifestation those smaller or greater signs of central nervous system disease frequently seen in severely depleted and dangerously intoxicated patients. Certain manifestations of the internal carotid artery syndrome were pointed out by J. Ramsey Hunt, in 1914. Hunt was particularly interested in the post-traumatic thrombosis of the internal carotid artery with anterograde propagation of the pathological process involving the anterior and middle cerebral arteries. Hunt drew attention to the hemiparesis, or hemiplegia, occurring on the contralateral side, associated with homolateral optic atrophy. Since, at that time, there was no specialized method of investigation beyond roentgenology, the diagnosis was either a clinical or post-mortem one. X-ray was useful only in those conditions in which the thrombotic artery contained sufficient calcium deposits to be detected.

In 1931 Egas Moniz introduced the use of a contrasting dye to study the cerebral blood circulation. With the perfection of his method and the necessary associated x-ray technic, cerebral angiography was generally and widely accepted by 1936. In an early paper on the radiologic diagnosis of the cerebral circulation, Moniz drew attention to a case of traumatic thrombosis of the internal carotid artery in which the clinical manifestations were hemiparesis, vertigo and mental disturbances. Later reports in the literature by Johnson and Walker in 1951, and Webster and associates in 1950, draw attention to non-traumatic or spontaneous thrombosis of the internal carotid artery.

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The onset of the condition may be slowly progressive or sudden. In cases in which trauma has been proven to be the etiological factor, neurological manifestations may be delayed as long as 10 to 16 years. Early symptoms may be headache or vertigo, sudden blindness in one eye, or homonymous hemianopsia. Occasionally, Jacksonian seizures, or even grand mal seizures, may represent the onset of the condition. Repeated attacks of one-sided weakness of fleeting hemiplegia may occur.

The condition is commoner in males than in females in a ratio of 2 to 1 and occurs more commonly on the left side than on the right. This is readily explained by the anatomical difference and by the ease of thrombus formation at the bifurcation of arteries. The occurrence of aphasia in right-handed individuals, is not uncommon. Sensory defects of central origin have been observed.

The course of the condition is a variable one. A small group, after a period of disability, may recover completely. However, complete recovery is usually confined to the younger age group. Some patients may recover partially with a residual speech disturbance and hemiparesis of a degree not inconsistent with a fairly useful life. With the older age group, the condition may be progressive, resulting in permanent paralysis, severe speech disturbances and mental defects of an organic type. The commonest age distribution is in the 5th to 6th decades. However, it has been reported in patients in their twenties.

The following case is reported from the Alcoholic Service of the Governor Bacon Health Service for several reasons. The patient is relatively young. The neurological manifestation and the mental picture might easily have been ascribed to organic defects resulting from prolonged and excessive use of alcohol. The importance of angiography in establishing the diagnosis in this case is readily apparent.

A. G., male, white, age 43 years, married with two children, a railroad employee, was admitted January 27, 1949, because of chronic alcoholism. During his brief stay, the patient became delirious and confused. With abatement of his delirium, it was noted that the patient was somewhat depressed and entertained many unsystematized, paranoid ideas. He was transferred to the Delaware State Hospital and released against advice March 26, 1949. In both institutions, the physical and neurological examinations were within normal limits and clinical laboratory examinations were normal. Psychiatric examination revealed an individual with little drive, few interests and considerable sexual preoccupation.

Following his discharge from the hospital, the patient made a border-line work adjustment. He continued his excessive use of alcohol, devoted his weekends to uninterrupted drinking, remaining more or less constantly under the influence of alcohol. While he was not troublesome or dangerous, the police frequently arrested him for his own protection. When he was found helpless on the streets he would be automatically placed in jail until he was sober. While this was a friendly and more or less informal arrangement, over the past 15 years this patient has a record of more than 70 arrests for drunkenness. On June 18, 1952, the patient was referred to the Center by the Family Court. He was accompanied by the county police. At the time of this admission, the patient was relatively sober, having spent the preceding 48 hours in jail.

Physical examination revealed a moderate degree of hypertension (190/110) which was not present at his first admission in 1949. His physical examination was otherwise normal. Neurological examination revealed a tremor of the protruded tongue and outstretched fingers. Bilateral patellar hyperreflexia was present. There was a moderate degree of dysarthria. The patient was dull and somewhat confused. On the night of admission patient complained of headache and vertigo and in the early morning hours of June 19th he was observed in an unconscious state, with twitching of the left corner of the mouth and left eyelids and clonic movements of the right arm and leg. When the patient was examined in the morning he was found to be much clearer than the preceding evening and was able to eat and begin to show some interest in his personal appearance. A repeat neurological examination revealed no localizing signs and a spinal fluid examination was within normal limits. Blood Kahn was normal and other laboratory tests were within normal limits.

On June 21st he was transferred to Robin Building, a section of the hospital devoted exclusively to the rehabilitation of male alcoholics. Here they have sleeping quarters, a social hall and recreational facilities. On June 23rd, at 7:30 in the evening, while sitting with some other patients in the open, the patient's right side began to twitch and he pitched forward on the ground unconscious. His breathing was stertorous and he had a typical right-sided Jacksonian seizure. It was impossible to arouse him. An examination performed shortly after this event revealed a right-sided flaccid paralysis, a rapid, full pulse, blood pressure 140/76. Within a half hour patient was able to recognize those about him and to understand spoken commands. However, he was unable to speak intelligibly. An examination several hours later revealed the patient to be conscious, although somewhat dull, aphasic and with a flaccid paralysis of the upper and lower right extremities. Abdominal reflexes were absent on the right side. There was loss of pain and thermal appreciation on the right side. The patient was unable to recognize form or texture with his right hand. With the exception of the aphasis which persisted, all the pathological findings rather rapidly disappeared with perhaps a very mild residual hemiparesis. On June 26th an electroencephalogram was negative for any cortical pathology. The tracing was an F-1, fast record of low amplitude. There was no evidence of any focal lesion.

A neurological examination performed by Dr. Philip D. Gordy on June 27, revealed the following positive finding. The right pupil was somewhat more dilated than the left but both reacted to light and accommodation. There was slight flattening of the right nasolabial fold. Motor aphasia and anomia were still present. Further examination reveals no evidence of weakness; there was no ataxia. The deep tendon reflexes were equal and active. There were no pathological reflexes. The right abdominal reflexes were absent. In discussing further study of the case a pneumoencephalogram was recommended and a cerebral arteriogram. Pneumoencephalography was carried out at the Center and the film showed a small amount of excess air in the left frontal region. There was no shift of the ventricular system. The third ventricle was clearly outlined, however the 4th ventricle could not be visualized. On August 16, 1952, a left percutaneous arteriogram was performed at the Delaware Hospital by Drs. Gordy and Olmedo. This revealed filling of the branches of the external carotid artery only. This suggested the diagnosis of thrombosis of the internal carotid artery. In order to confirm this finding, direct exposure of the carotid artery was carried out on August 20, 1952, with repetition of the arteriogram by the open method. At operation the left internal carotid artery was noted to be very small and atrophic. Injection of diodrast into the common carotid showed complete thrombosis of the internal carotid artery.

Although the patient recovered neurologically, following his discharge from the hospital, with the exception of a mild aphasia and a slight weakness of the right side, his general adjustment at home was poor. He expressed many suspicions and paranoid ideas, made empty threats, spoke strangely and made his wife and children uneasy and fearful. In order to evaluate the mental picture which was assuming regnancy in the patient's condition, he was readmitted to the Governor Bacon Health Center at Dr. Gordy's request, on October 13, 1952. At this admission he was found to be physically lethargic, easily confused and morose. A battery of psychological tests were performed, indicating strongly that the patient was suffering from organic cerebral damage. The test findings demonstrated a mental deficit which was particularly apparent in his abstructive functioning. The paranoid trend in many of the patient's productions was considered to be part of his basic personality structure rather than a direct consequence of his brain damage.

Over a period of two months the patient gradually improved in attitude, in the quality of his thinking, and he became generally more energetic. However, an electro-encephalogram performed in early November revealed slow wave activity over the left frontal, temporal and parietal lobes. High voltage, 2 to 3 per second waves, were present throughout the tracing, from these three leads. He was discharged on February 4th to his home, having shown remarkable physical, mental and emotional improvement. The patient was referred to the Vocational Rehabilitation Service in Wilmington and a position was secured for him as a night watchman. In this capacity he functioned very adequately. He has been able to maintain sobriety since his discharge in February.

A recent follow-up (June 5, 1953) revealed the patient to have gained a great deal of weight. He appeared cheerful, contented and interested in his family who accompanied him on this visit. There was no apparent aphasic phenomena although there was a mild weakness of his right hand. This in no way interfered with his work. Ambulation was normal. The patient's mental and emotional status was considered to be normal by his wife, although the patient has a lower threshold for irritability than formerly.

Summary

1. A case of spontaneous thrombosis of the internal carotid artery in a chronic alcoholic is described.

2. The importance of ruling out internal carotid artery disease in presence of seizures, transient sensory or motor defects of the cortical type, is emphasized. In the wake of excessive alcoholism these signs and symptoms may be attributed to the toxic effects of alcohol without further investigation.

3. Attention is directed to the important position of cerebral arteriography in the differential diagnosis of mild or transient neurological defects in chronic alcoholism.

INVOLUTIONAL PSYCHOSIS

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The involutional period in life is a physiological epoch common to men and women alike, bringing in its train certain mental and bodily changes. The mental faculties, in general, become less acute. There is a tendency to bewail the past and to feel that the future has nothing in store. The mind is occupied with the "might have beens," and in consequence doubt, indecision, fear and anxiety readily show themselves. The glands of internal secretion begin to fail in their functioning, and the general bodily health is lowered. It is impossible to state definitely when the involutional period begins and when it ends, but roughly it may be put from 40 to 55 years of age in women, and from 50 to 65 years in men. Probably, the chief features characterizing this condition are: depression without retardation, anxiety, a feeling of unreality and many hypochondriacal symptoms. The most characteristic involutional quality lies in the content of the psychosis, especially in the apprehension and the hypochondriasis, and these qualities are the result of psychological changes associated with advancing years.

Naturally, concerning the cause of this condition, we must consider the involutional period of life, because that is the most common factor. This is probobly more true in women than in men because of the physical concomitants of the menopause are well known and recognized. The mere fact, however, that many people reach the involutional period of life without having previously shown signs of any mental disorder have stouter mental and physical qualities than those who break down from the more purely constitutional disorders. Nevertheless, it is stated that schizophrenic psychoses are frequently both in the ascendants and the decendents of these patients. Sometimes, there is a history of exciting factors, either psychic, physical, or a combination of both, but there is an underlying type of personality in many of them that has certain characteristics which can be emphasized. They have a record of hard work behind them. They are sensitive, meticulous, and over-conscientious, over scrupulous, active people who take a pride in their work and have a high sense of duty toward others.

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Other writers have described them as showing a narrow range of interest, poor faculty for readjustment, asocial trend, inability to maintain friendships and intolerant and poor adult sexual adjustment. Also, there may be a pronounced rigid ethical code, and they show a high degree of sensitiveness. As mentioned before, the symptoms of this condition center around a state of anxiety and agitation, accompanied by delusions of a depressive nature, frequently hypochondriacal. This state, although common to the great majority of cases, shows all kinds and shades of variations so that no two cases are ever exactly alike. Probably, the outstanding feature of all is one of anxious depression, and this has often been preceded by a stage during which the patient has often complained of tiredness, of a feeling of inadequacy, of being easily fatigued and of sleeplessness. They may also have physical symptoms such as feelings of pressure in the head, difficulty in thinking, vertigo, and irritability. The appearance and the attitude of such patient is one of great misery. They feel frightened; they are restless, wringing their hands, moaning and groaning at times and tending to rake over their past. The slightest faults become the most terrible crimes. They feel there is no hope for them and fear that they are to be thrown out; that they will be taken to prison, that they will be without a home, or friends, and will be alone in the world. Such patients in their misery from time to time mutilate themselves and the danger of suicide is great.

In addition, they are greatly resistive to care and treatment, refusing food because they do not feel that they are entitled to it or because they are suspicious that it has been poisoned. Besides blaming themselves, they hold themselves responsible for the condition of others with whom they come in contact. As a rule there is very little clouding of consciousness. They are correctly oriented; memory is fairly good, and the individual realizes to a certain extent that he is ill. If the case is extremely acute and active, there may be hallucinations of a terrifying nature and a certain amount of disorientation. The course of this condition is apt to be very prolonged. Those who develop mental illness at the involutional period of life have lost most of their adaptive capacity and in consequence it is difficult for them to throw off such a type of illness. We can not look forward to a patient getting well in a period less than six to nine months, and not infrequently, of course, it is very much longer. So long as the affect is maintained, and so long as there is no organic involvement of the brain, we don't really have to despair such a case up to the end of eight years from its onset, even more. We do know from past experience that some have made a fast adjustment; others tend to persist.

It has been noted that in the recoverable type, there is much emotional reaction, usually in the shape of great aggrevated anxiety with restlessness, prominant delusions of death and poverty. In those cases and the three symptoms of peevishness, hypochondria and restriction of affect are definitely associated with a bad prognosis. If in these cases, the affect is well maintained, then there is no reason to give up the case particularly if persistant affect is accompanied by certain cooperation and interest in work. If we are able to get such patients to work, even in a mechanical way, the outlook is so much better. The other important point is to determine in the prognosis, whether or not there is any complicating organic process, causing a failure of memory and sufficiency. If such is present then the prognosis must be viewed much more gravely than would otherwise indicate.

As far as treatment of this type of patient is concerned, the first question to be considered is whether to treat the patient at home, in a nursing home, or in a mental hospital. If the patient is well to do, and can afford to have special nurses, the case can often be treated satisfactorily in the patient's own home, or a nursing home. A great danger is the possibility of suicide and in such cases the relatives should always be warned of the grave responsibility they take. The average involutional case is treated best in a mental hospital. It is essential to safeguard the patient every day and in every way, and particular attention must be devoted to maintain his strength by nourishing food and by sufficient sleep. The first point, therefore, is to promote complete rest in bed. By the time patients come to the mental hospitals, they are often so devitalized that the main thing to do at once is to give them sufficient rest and to improve their bodily health with sufficient nourishment. This often has a very quieting effect and helps toward improving their sleep at night. Such patients determiningly resist food, largely because they feel that they have no appetite or because they feel that they can not pay for it. In this connection, we would strongly advise tube-feeding be done before a great reduction takes place in weight and health. Sometimes, if the patient is tube-fed early in the course of the illness, the results are very beneficial and besides it avoids repetition, as the patient will frequently take meals voluntarily.

These patients, especially the agitated ones, need sedation in order to secure rest. The drug we use will vary in the individual case. It may be paraldehyde, bromide-chloral or some other preparation. Occupational therapy is also of great value, as occupational therapy helps to engage his interests and the accomplishment of the simplest tasks creates a feeling of self-confidence and self-satisfaction which leads to improvement. From the psychological point of view, many patients get comfort in talking over their troubles, but in a few stages it seems that anything in the way of analytic nature should be avoided and suggestions and explanations of his psychoanalytic nature should be withheld. Some patients will benefit from talking over their troubles; others seem to be made worse. The way must be found to prevent a serious catastrophe. Once a patient's condition has sufficiently quieted down to permit a review of the whole illness and of the causes which have precipitated it, there is not the same danger, and then it is wise to give the patient a better understanding of how the illness has developed along common sense lines. By doing so a recurrence may be prevented. Generally speaking, the physical state should be carefully attended to and any physical disorder should be quickly corrected. The main thing, however, is to safeguard the patient, and to maintain his health at as good a level as possible and to give him plenty of time to make a readjustment.

To reiterate, the danger of suicide should always be kept in the forefront and can only be obviated by unremitting attention, and observation day and night. It is in the depression that the results with electro-shock therapy have brought most striking results, and should always be considered, providing the physical condition of the patient will permit such procedures. The many hypochondriacal symptoms that these patients display is also often found in psychoneuroses. But it must be remembered that a psychoneurosis is a subconscious attempt of the individual to adjust to his environment, while a psychosis is a failure to make an adjustment, and therefore a flight from reality.

Allow me to summerize briefly, a case of involutional psychotic reaction, which was admitted to this hospital, and has made a fairly good adjustment. This patient, a woman, fifty-one years of age, entered this hospital early this year. She was well educated, and held a political clerical job. Her life could be considered rather normal. She was married for thirty years and has three children. At the age of forty-nine, she went to the hospital for a blood-transfusion, because of an anemic condition. And there it was discovered that she had a uterine tumor. A panhysterectomy was done, and later on she underwent surgery for a blatter condition. At this age, it may be assumed that this patient was in, or was entering the menopausal stage. The panhysterectomy created an artificial menopause suddenly, and following these operations, she became quite nervous, fearful of her operations. When she came home from the hospital and attempted to do some housework, she had to lie down and could not finish her work. She seemed to have lost all confidence in herself and seemed to be unable to cry, and as she said that if she could cry she would feel a lot better. Her appetite became poor and she lost a lot of weight. She developed a nervous habit, one of constantly pacing the floor.

On admission to this hospital, she showed much tension, and she worried constantly about her body, and repeated over and over again that she had two serious operations. She seemed to be disturbed about the fact that she was unable to cry and she was constantly wringing her hands. She appeared to be underweight, weighing only eighty pounds. She had feelings of unreality, she thought that there were fingers scratching at her, and that there was something clutching at her chest. However, she was well oriented in all spheres. Her husband described her behavior as if she were in a trance. And the patient talking about herself said that her mind is not back to the way it used to work. Therefore, in formulating this case, we must consider that this patient at the age of fifty-one, had several new experiences which caused her a great deal of distress. She had a panrysterectomy in September, following which her recovery was not too rapid. She had another operation in December on the bladder. During the election, she lost her political job, because her party went out of office. All this coupled with an artificial menopause, seemed to bring on feelings of anxiety and depression. Because of her age, her preoccupation with somatic complaints, and her artificial menopause, this demonstrates rather clearly a case of involutional psychotic reaction.

In the hospital, the patient received ten electro-shock treatments. Since then the patient has shown marked improvement. Her appetite is good and she has gained thirteen pounds. She no longer has any somatic delusions, she does not worry about her operations, and her sleep is good, and at this writing, the patient is completely free from psychosis and has been placed on trial visit status for an indefinite time.

AN ELECTRIC SHOCK FATALITY

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The scientific literature regarding fatalties following electric shock treatment is meagre and inconclusive with very few reports being published. One survey by Kolb and Vogel shows a death rate of 0.06 per cent, while Almansi and Impastalo found a figure of 0.8 per cent in their review of the literature. Hoch and Kalmowski feel that the clinical details regarding such deaths are not too clearly defined and no definite conclusions are able to be formulated. One case of a cerebral fat embolism was reported by Meyer and Teare in 1945 with the patient collapsing soon after the first convulsion and dying several hours later. Histological examination showed extensive cerebral fat embolism present without any bone fracture that might have been a causative factor. The greater part of the fatalties do appear to be of a cardiovascular origin.

At the Delaware State Hospital, from July, 1942 to July, 1953, 30,496 electric shock treatments have been given to 2,472 patients without any deaths but the present reported one. All the treatments have been with the standard type machine, until February, 1953, when we began using the Reiter apparatus in which the form of the shock is changed to a less physically active type of reaction.

The patient was a 50-year-old, white, married female with a four months' history of apathy, auditory and visual hallucinations, involving people and of a frightening context. She was completely disoriented for time, place and person. There were delusions regarding her two-year-old twins when in reality she has a 14-year-old daughter. She was incontinent for bladder and bowels. Her appetite was poor and she often held food in her mouth for several hours. Physical examination showed an obese female with a pale skin. There were large, superficial ulcers over both legs with moderate, varicose veins present. Neurological examination was essentially negative. The patient was too weakened from being continually in bed at home the past two or more months, to walk. Blood pressure was 110/70.

A soft apical, systolic murmer was present. Her lung fields were clear. No abdominal tenderness or masses were palpable. The calf muscles were atrophied and a poor muscular tonus was present throughout. Spinal fluid examination showed 1 cell, protein 60/mgm., Wassermann negative and gold curve flat. Urine was yellow, acid, specific gravity of 1020 and negative for albumin or sugar. Blood Wassermann and Kahn negative Red blood cells 4.54 million, Hgb. 93%, W. B. C. 8,700 with 67 polys, 28 lymphs, 2 eosinophiles, 3 monocytes.

The dermatological consultant prescribed treatment for her leg ulcers. The patient was seated in a bedside chair several times daily and she was scheduled for electric shock treatment as soon as permission could be obtained. On May 5th she received her first convulsive treatment with the Reiter apparatus without any unusual sequelae. On May 7th, she received another treatment at 9 a. m.; at 9:15 a. m., the student nurse watching this patient noticed respiratory difficulties. When I saw the patient a minute later, no heart beat was audible or palpable, respirations were very shallow and spasmodic with the patient not responding to any stimuli. Symptomatic treatment was started with the Reiter electro-stimulator which initiated regular but shallow respirations at a rate of 18 per minute. Oxygen was supplied and adrenalin given i. v. No heart beat or blood pressure was obtained at any time. Respirations became progressively weaker and the patient died at 9:50 a. m.

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Post-mortem examination of the brain grossly showed a moderate cortical atrophy with diffuse congestion of the small vessels. Microscopic examination did not reveal any other pathology. Examination of the rest of the body showed a left, pulmonary embolus, the diameter of a pencil, and two inches long. The pelvic and thigh veins were explored with negative findings. The liver, kidney and spleen were congested. No other significant findings were present. Cause of death was listed as a pulmonary embolus.

Speculation as to the point of origin of the embolus was that it came from the leg varicosities, possibly being detached by the extensive physical efforts in shock treatment. Probably the stasis caused by her prolonged bed rest for several months at home contributed to the situation.

As we go on, the contra-indications regarding shock treatment became progressively fewer. I do not regard varicose veins and the possibility of an embolus as a contra-indication since so many people with this condition do receive shock without any difficulties, but it may be worthwhile to consider the possibilities of trouble arising in the course of treatment when they are present.

PSYCHIATRIC CONSULTATION ON MEDICAL AND SURGICAL SERVICE: A CASE ILLUSTRATION

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Psychiatrists have long pointed out the need for medical and surgical patients to have access to a psychiatric evaluation. Often the general practitioners have felt that with the time available to them, it is difficult to sit down and get a complete clinical picture of the patient's history. Therefore, it is felt by this writer that it might be wise to point out certain signs and symptoms in the patient's history that would lead to further psychiatric evaluation and hence a more accurate diagnosis and therapy. The case illustration that is about to follow is a good example of certain symptoms that would indicate to the general practitioner that a psychiatric consultation should be considered early, rather than after exhaustive and sometimes unnecessary and expensive procedures have been carried out.

This is a 68-year-old, married man who was referred to the Observation Clinic of Delaware State Hospital because of abdominal pain, agitation, insomnia and an eating-problem of only being able to subsist on cereals and baby food. This patient has a history of having had a somewhat similar attack in New York 24 years ago when he had to be hospitalized because of "being worn out." At that time he made an uneventful recovery following treatment which included psychiatric care.

The onset of the present illness, which was marked by dysphasia of nine months' duration, was first brought to the attention of a physician on February 10, 1951. At that time a biopsy of the terminal portion of the esophagus was done and the pathological report showed no malignant cells. The patient was discharged with a final diagnosis of cardiospasm. Shortly after he returned home, he developed a virus infection and was in bed for six weeks. He then did fairly well until August, 1952 when he again took to his bed and began to complain of terrible pains. At that time it was suggested that the patient's teeth be removed and this was done. However, when this did not help the situation, the patient was taken to a Philadelphia hospital for a complete gastro-intestinal work-up. At that hospital he had the usual routine studies, a complete G-I work-up, and again was esophascoped. A diagnosis of peptic esophagitis was made and the patient was placed on a diet of puree foods and was advised to take Gelusil. He seemed to improve with this treatment and returned home December 12, 1952. Shortly afterwards he had an exacerbation of symptoms and was rehospitalized. This time the local practitioner recognized the need for a psychiatric consult. At a result, the psychiatrist was called in and the patient was referred to Observation Clinic.

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On admission the patient gave the history as described above. He was quite apprehensive. He stated that he had difficulty sleeping, could not eat anything except cereal and milk, was somewhat depressed and had numerous crying spells. He also gave a history of being sexually impotent. The overall picture was that of a mild depression. After the second week he lost his pain in the chest, began to eat solid foods and was smoking for the first time in three years. After the third week he began to sleep without sedation and there was no evidence of the anxiety and depression that brought this man to the hospital. All these changes were brought about by allowing this patient to express his feelings in a very permissive atmosphere. At the end of five weeks the patient continued to socialize, sleep without sedation. There were no physical symptoms and he began to be less preoccupied with himself. According to his wife, the patient was back to his usual self and, in many ways, was better than he ever had been before. The patient was finally discharged recovered after a hospitalization of seven weeks.

As the history indicates, much of the extensive medical study, with its concomitant financial burden, could have been avoided if this man's psyche had been properly evaluated earlier in the course of his illness. For example, he had a history of the psychiatric disorder 24 years previously which was not thoroughly investigated even though his symptoms, at that time, were almost identical with those of his present illness. Other factors not given proper consideration were the obvious physiological manifestations of anxiety that were delineated, namely, insomnia, difficulty in swallowing, vague aches and pains, etc.

This could serve as a good illustration of the importance of a complete evaluation of the patient and not falling into the pitfall of focusing attention on the patient's presenting complaint. Just a little more history and a few questions to give a clearer picture of the emotional side of this patient's life could have helped him be directed to a psychiatrist. Another important factor is that this man was receptive to psychotherapy, was helped in seven weeks and suffered two years unduly before the real nature of his disorder was understood. Too often, in our efforts to find physical causes for symptoms, we overlook emotional causes. It is important to recognize the interdependence of body and mind in order best to serve the needs of the patient.

INCIDENCE OF TUBERCULOSIS IN THE STATE HOSPITAL

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The following data are derived from (1) a review of all the 14" x 17" chest x-ray films that were requested on all the suspicious appearing lesions on the 70 mm. films that were taken by the State Board of Health mobile x-ray survey in January, 1950; and (2) a summary of all the positive 14" x 17" chest x-ray films that have been taken by the x-ray department of all patients admitted and personnel employed and all routine x-rays of the chest taken since the mobile unit survey in January, 1950.

This summation appears to be fairly accurate as an x-ray of the chest is required as part of the examination on all patients on admission as well as all persons for employment.

There were, however, a few patients for various reasons that could not be x-rayed at the time of the visit of the mobile unit.

During the past 18 months there were three patients found to have a presumable case of active pulmonary tuberculosis. Fortunately, their mental state was such that it was feasible for their transfer to a sanatorium. There was a student nurse with a known tuberculosis lesion, which reactivated while in training, and also an attendant. Both of these were hospitalized.

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During the course of examination for employment an applicant was found to have an active case of pulmonary tuberculosis.

As of July 1, 1953, the patient population of the hospital was 1395 while the personnel population was 395.

Patients — 1395

Total number tuberculosis cases	33
Per cent of the total number	2.36%
Ratio of total cases	1 to 42
Active cases of tuberculosis	5
Per cent of active cases	0.357%
Ratio of active cases	1 to 279
Inactive cases of tuberculosis	28
Per cent of inactive cases	2%
Ratio of inactive cases	1 to 50

Employees — 395

Inactive cases of tuberculosis	5
Per cent of inactive cases	1.27%
Ratio of inactive cases	1 to 79

Stage of Disease

Patients	
Active cases	
Minimal	1
Moderately advanced	2
Far advanced	1
Military	1
Total	5
Inactive cases	
Minimal	17
Moderately advanced	10
Far advanced	0
Military healed	1
Total	28

It is interesting to note that during the past 18 months there have been 64 autopsies performed by the visiting pathologists and in no instance has any active tuberculous process been found at the autopsy table. Nor has there been found any healed tuberculous lesion more extensive than a minimal case.

These above findings do not appear as high as those reported from other mental institutions and for which I have no definite explanation, as I cannot see where it can be due to neglect of x-raying of patients and personnel, nor can it be said due to classification, as all the lung lesions visualized on the chest x-ray film, including presumable scars, have been considered tuberculous, except those acute lesions which have cleared in a few days on medication and a case of extensive bronchiectasis.

In the five cases which are considered active, the sputum or stomach washings have been negative for acid fast organisms by direct smear and culture by the State Board of Health laboratory.

So, as of this date there is not a proved case of open pulmonary tuberculosis in the hospital. The reason for the 18-month statements are that the writer has only been connected with the institution since January, 1952.

GROUP PSYCHOTHERAPY

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Man has always functioned in "groups" for many reasons. Through this group activity certain objectives have been reached depending on the goals. Man cannot function efficiently by himself. Since he must of necessity live in a group setting, those who are unable to derive satisfactions or whose behavior does not conform to the social structure are said to be poorly adjusted. The degree of maladjustment and the causes of maladjustment vary. Hence, therapy must be determined by these factors. The purpose of this paper is to deal with one of the therapies — group psychotherapy. This is by no means a new form of therapy but it is only in comparatively recent years, its potentials have been fully appreciated. It grew out of a necessity to meet the needs of those for whom other types of care was not suitable or impossible. "Group therapy can be conceived both as a social re-education and as a special form of phychotherapy. It is a special variety of real social experience which can be exploited to correct social (reactive) disturbances, personality disorders of some types, and also in a positive sense to promote personality growth."[1]

In group therapy there are no specific

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goals but as many objectives as there are members. Primarily, however, the aims are to: (1) relieve tensions and anxieties in the patient, (2) help the patient resolve some of his conflicts, (3) help the patient develop an understanding of the reasons for his difficulties, (4) help the patient change socially unacceptable behavior to that which is acceptable. Patients must be carefully selected and group therapy prescribed for those for whom this experience will meet certain basic needs. The degree to which this experience will benefit the patient will depend on his willingness to tolerate temporary pain and insecurity for the eventual reconstruction of more healthy attitudes and behavior.

Patients are prepared for therapy through individual interviews and are made to understand this is a treatment and not designed for their interest or entertainment since its success depends largely on the patients themselves. How well a patient responds in the group (group usually consists of 6-10 patients) will be determined by his desire to change and ability to withstand psychic pain. The therapist plays an important role in setting the pattern of the group and in his ability to sense the patient's needs. He must avoid restraining individual expression and yet impose restraint in certain instances when patients are compelled to go beyond limits which, therapeutically speaking, they are capable of handling. The therapist at the same time provides security for some of the patients and evokes inhibitions on the part of others, therefore, a sound rapport with all is essential. There is no one method by which this can be accomplished. However, if the therapist is a well adjusted person, he frequently indirectly establishes the feeling of assurance in the patient that is necessary to go on with therapy.

The activity of the therapist remains at a minimal level to encourage the members to act as therapeutic agents in the "group." This cannot take place if the therapist interjects too much of his own patterns. Later on he may use material gathered from these sessions to further help the individual patient to uncover or interpret behavior. For the time he permits patients to explore, compare notes, see the similarities and differences in behavior. This results in a group identity and a feeling for one another and can be brought about only by a permissive therapist. The active therapist on the other hand frequently increases dependence on himself by denying opportunities to the members to express themselves which is apt to bring about a therapist-patient relationship which may hinder the patient's progress. Since treatment must begin at the level of the patient's ability to use it, the therapist's quiescience will enable him to better observe the individual patient's needs. Patients differ in their desire for help, ability to understand and to accept what is offered. Some progress rapidly, others slowly, thus, the same degree of change cannot be anticipated in all members in a group.

In the early sessions patients usually begin with their symptoms and tend to consider the precipitating situation the cause for their difficulties. Through the ensuing discussion they may learn all individuals do not react in the same manner and this prompts further self scrutiny. At the same time the group with the skillful help of the therapist tends to limit the too rapid uncovering of emotions which may be harmful. The patient should be kept aware of the realities of society which places the boundaries of socially acceptable behavior. One patient's comments stimulates another to discuss something pertinent to him, still another may recall and discuss a forgotten episode. During the association the therapist merely encourages the patient to continue if he wishes to but is blocked temporarily. It enables the therapist also to see much that has been secreted and to make an evaluation of the patient's needs as well as understand what the patient's symptoms mean to him.

As the process of retelling takes place, to a certain degree the patient relives the experience thus providing catharsis which brings about a lessening of pain. It enables the patient to examine his shameful feelings and it is not quite so necessary for him to hide or ignore them. Encouragement from other members of the group aids in the cathartic process as well as cementing a warmer relationship. As catharsis tapers off, attempts are made at understanding. During the period that the patient is trying to integrate into his total personality what has come out through catharsis, he needs the support of the therapist to steady him and reduce the anxieties so they are bearable. In providing this support two factors are of importance. First, that it be given at the time it is required and secondly, conveyed in such terms that the patient feels accepted or at least not condemned. The therapist must be sufficiently sensitive to the patient's need for support that it is forthcoming at the precise moment that the patient makes it even though the patient himself is not aware that he is seeking support. This, of course, implies that the means of support will vary and be determined by the circumstances at the moment. Frequently patients support one another.

As the patient struggles to discard undesirable behavior, he may still cling to protective symptoms. Frequently he is unconscious of the effect of his behavior on others because of preoccupation with his own problems. It may then be necessary for the therapist to help the patient see himself in relation to those about him. The content and timing of this reflection of feeling should be suited to the patient's needs. The patient must be given recognition and held to reality. Too often the symptoms are magnified to the point that responses are all out of proportion. By maintaining objective limits the patient is encouraged to face reality.

In the group the patient learns others have experienced many of the feelings of guilt, anxiety, fears, and tensions that he has. This helps him realize that he is not so different from others and often provides the courage for him to go on with the therapy. While the patient struggles for understanding, it is necessary, at times, for the therapist to clarify the problem. This he may do by either restating the problem or by offering interpretations that the patient may utilize. For a time the patient tends to lean on the therapist but gradually he must be taught that it is possible for him to stand on his own feet. Usually the patient is allowed to decide for himself, his readiness to proceed.

To this point we have discussed the smooth process of group therapy. It is not always thus. Frequently the patient cannot go on when pain is imminent. There is resistance, resentment, regression. It is at these points, if tactfully handled by the therapist, he can find courage to move on. Often there is a tendancy, after a few sessions of expressing himself, for the patient to relax and go back to earlier behavior. Silences may occur in individuals or in the group. However, these can be beneficial as it provides opportunity for reconstruction of the past into the total personality. It is then, when patients experience satisfaction in changed attitudes and behavior that they begin to evaluate and renewed energy carries them on. Although group therapy brings about only limited insight and personality changes, it does enable the patient to alter his reactions to the point of functioning in a more adult fashion and to achieve a more satisfying pattern of living.

Earlier we mentioned that group therapy grew out of a necessity to meet the needs of those whom other therapies was impossible or unsuitable. In a hosiptal situation due to shortages, pressure of work, case load, group therapy answers an important need since more patients can be reached than by individual therapy. Essentially, the dynamics described have been employed at the Delaware State Hospital. Since this program is still in the experimental stage and sufficient data has not been collected to present a scientific report, only a summary of results based on observation can be made. Of the group that has attended sessions, we feel that the patients have been aided in relieving some of their tensions and anxiety, it has helped them to become less dependent upon others and has aided some in being less fearful of returning to the community. It has been chiefly supportive in nature. In selective cases it has been combined with intensive individual therapy in an attempt not only to support the individual but to give him insight.

In conclusion, group psychotherapy has a defnite place in the treatment of the emotional ailments of selected groups and is a valuable therapy in the hospital situation.

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GERIATRIC ASPECTS OF MALE PATIENTS

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The senile period, arbitrarily, may be stated to occur from 65 years onwards. When we speak of senility and senile psychoses, we refer to those mental disturbances which occur, as a general rule, after sixty-five, while disorders appearing from forty to sixty or sixty-five are called presenile. Yet there are many men over 60 or 70 who are physically, intellectually, and emotionally superior to many younger persons.

The chief psychoses encountered in older persons are the involutional psychoses, senile psychoses, and psychoses with cerebral arteriosclerosis.

Prophylactic theraphy of the aged has been stressed by some authors. By adequate preventive measures, many of the difficulties of senescence can be avoided and many others minimized. As one author has stated, it is still possible, despite the imperfect state of our present knowledge, to (1) retard the debilitating effects of the aging process, (2) take precautions against certain diseases associated with old age, (3) cultivate work activity, (4) develop sustaining familial, social, and economic safeguards against the time when they will be needed, and (5) cultivate true, individual mental hygiene and a guiding life philosophy.

Activities need to be regulated in the aged and no definite rules can be set. A proper combination of rest, exercise, and adequate nutrition is beneficial.

Lack of interest in what is going on about them in a world in which they no longer have a part contributes to the elderly patient's forgetfulness of recent events, and they find refuge in reminiscence. He needs some routine, some grooves of usefulness to guide his remaining years of life.

The setting of one such treatment unit at the Delaware State Hospital consists of a one-story building around which is a spacious yard. The boundaries of the yard include a California Privet hedge on three sides. There is a garden in the southwest corner. There are two magnolia trees, several maple trees as well as some other trees and flowerbeds. Birds, rabbits, and insects play a role in this yard which adds interest to some patients.

There are those patients who show good response to gardening as creative work. Others with an aesthetic sense respond to the beauty of flowers and music.

During the winter months activities consist of radio, television, and recordings. Some patients have the privilege of leaving the building throughout the year to such varied programs as church services, library, movies, dances, bazaars, carnivals, competitive sports and games, and gymnasium activities. A commissary provides leisure-time enjoyment to those patients who are financially-able to participate.

Thus hobbies assume a definite therapeutic significance in the psychological adjustment of an individual to his environment. To help bring about mental readjustment they must fill their time, revive their interest in life, and they are encouraged to use their hands and their brains.

As has been aptly stated in a recent article on gerontologic human relations the aging human individual is just beginning some of his most important functions. The elderly individual thus manifests valuable attributes of achievement in the social creative sphere and in many other phases of realistic accomplishments.

Special facilities are made available at the Delaware State Hospital for a recent and effectual method of therapy, namely, group psychotherapy. In the above-mentioned unit, a special psycho-therapist conducts a group of about 11 patients for periods of one hour, twice weekly. The psycho-therapist's role in treatment is becoming increasingly recognized as a most important one. It has been found that by instilling hope, confidence, and reassurance, much can be accomplished in properly-selected cases. Even in definitely organic conditions, function and performance can be improved by psychotherapy.

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There are no fixed rules in the therapy of the aged. In principle, it is most important for the elderly patient to have some kind of work and interest which can occupy his attention and time.

States of frustration and feelings of helplessness arouse fear. The fear blocks remaining avenues for self-reliant activity of the aged person; this inhibition adds psychologically-determined inaction to the already existent physiological (and psychological) deficits.

Because of the lowering of physical and mental resistance in elderly patients it cannot be expected in all cases that realistic mastery can continuously take place in a self-perpetuating manner. The treatment efforts must therefore be continuous, recurrent, and reinforcing in their method of application.

It was reported in a recent study of an attempt having been made to elaborate on a method of giving reassurance and emotional support to elderly patients outside of a mental hospital. The results indicated that while treatment was ineffective in the psychoses, changes in psychological and social functioning were achieved that permitted continuance of residence in a Home for aged and infirm persons when transfer to a mental hospital seemed to be the only solution.

It has been stressed by some that types of therapy for the aged must be brief and simple. This is necessary in order to conserve and put to good use the physical and mental capabilities of the patient.

One wonders finally what accounts for the differences in adaptation to old age. Those people who have the minimum of mental conflict and unresolved emotional problems have the greatest reserve with which to meet life's stresses. They are the least likely to resort to neurotic, maladaptive solutions of these stresses. It may further be stated that each individual's personality is related to one's genetic endowment as well as experiential factors.

Nursing care, occupational therapy, recreational therapy, the attendants, and the social workers all contribute to the therapeutic management of the patients. A multiplicity of interests is encouraged with avenues for the development of good creative abilities.

Geriatric treatment concerns itself with general hygiene, the maintenance of nutrition, and the establishment of a favorable environment. As an adjunct procedure, psychotherapeutic measures have brought about improved function and performance in certain mental conditions of the elderly male patients.

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ISLET CELL ADENOMA OF THE PANCREAS

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In the early 1920's, Bunting, Best, and his collaborators, introduced insulin into the therapy of diabetes mellitus. Since then it was noted that the overdosage of insulin might cause hypoglycemic reaction. In the following decade, there were few cases reported, where there were symptoms of hypoglycemic reaction, without the patient having had insulin. Autopsy findings in those cases usually reported islet cell tumors of the pancreas, mostly in the form of adenoma, seldom in the form of carcinoma. From 1929 on, there were several operations for the removal of the adenoma of the pancreas. In 1938, Whipple described the criterions for such operations, and also worked out a procedure for the removal of the tumor of the pancreas, which was later named after him.

Since 1933, when Sakel, introduced the insulin shock treatment in psychiatries, the symptoms of the hypoglycemic reactions were extensively observed and described. According to Kalinowsky and Hoch, the symptoms of hypoglycemic reaction in the first two hours might be somnolence, hypotonia, perspiration, clouded consciousness, fine tremors, aphasia, apraxia, agnosia, motor excitement, confusion, psychotic syndromes, and finally loss of consciousness. Hypoglycemic attacks occuring in patients suffering from islet cell adenoma of the pancreas might be very likely to show the above named symptoms, however, individual variations occur. In as much, hypoglycemic attacks might be due to pathological changes in other organs besides the pancreas, therefore, careful research should be done to differentiate it from the liver, adrenals, thyroids, and hypophysis lesions, tumors, or diseases. (Lately, from communications about cases of hypoglycemic attacks due to islet cell adenoma of the pancreas, authors concur that often the presenting symptoms are such that the patient gives the impression of being severely intoxicated either by alcohol or by drugs.) In these cases, the hypoglycemic attacks and its symptoms usually occur only in the morning or prior to mealtime.

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* Assistant Physician, Delaware State Hospital

Case Report

This sixty-year-old, while, male was admitted to the Delaware State Hospital on August 28, 1952, on voluntary commitment. The patient complained "I have spells. I get lost. I don't know what I am doing on such occasions." Family history was not contributory. Personal history revealed that the patient was born in Maryland, and was the eighth among nine siblings. Patient had a grammar school education. He had a good work record until 1947, when he stopped working after twenty-five years for a railroad company. Patient was a heavy alcoholic. He was married at the age of twenty-one, and has two children. In 1947, the patient's wife and two children separated from the patient because of his alcoholic habits.

The patient was compelled to give up his work, in April 1947, because he had "dizzy spells." Sometime in that month, patient had a "light stroke" according to the patient's daughter. On May 10, 1947, the patient was found unconscious in his room which was "completely torn up" and he was admitted to the Delaware Hospital on the same day. Although the patient was comatose on admission, he soon regained consciousness. Patient admitted at this time alcoholism for the past twenty years. The laboratory findings at that time, showed among other things, a blood sugar level on admission of only 40% of normal. Patient was discharged on May 31, 1947, with the diagnosis of "encephalopathy due to ethyl alcohol". After his discharge the patient lived with his sister, who reported that patient occasionally has spells during which "he will fall, become unconscious, the body is stiff and rigid, and the arms and legs are jerking spasmodically." Occasionally, patient would become incontinent. A few minutes prior to the attack, patient would laugh or cry without control, and seemingly had no control over his legs. A local physician told the patient, that his condition was due to the lack of sugar. These attacks usually came about once a week or every ten days. If the patient would take a spoonful of sugar or sweet coffee he could snap out of this attack.

In the first three years, prior to his admission to the Delaware State Hospital, patient had occasional crying spells, and gradually patient neglected his personal appearance. A few days prior to his admission to Delaware State Hospital, one Sunday morning, the patient came downstairs in his sister's home, dressed only in his underwear. He appeared to be confused and for no specific reason, he threw a chair at his brother-in-law, and pushed his sister against the sink. When patient was admitted on August 28, 1952, he stated, "I have spells when I get lost and don't know what I am doing. It starts in my stomach. It is an annoying feeling. Then it spreads all over me. I start to perspire and will get wet all over. I also get shaky and trembly. If I drink some very sweet coffee, immediately it will help." Patient was well oriented in all spheres. During the interview, patient was attentive, friendly, relevant, and coherent.

Admission physical examination revealed a patient with an athletic build. His blood pressure, was 108/84 in supine position. Pulse rate was 82 regular. The chest, abdomen, and genital organs show normal findings. Neurological examination revealed normal findings of the cranial nerves. Patient shows some past pointing to FF and FN. The biceps, cremasteric, knee and plantar reflexes were sluggish. Babinski and Romberg were negative. The progress notes revealed that on August 31, 1952, in the morning the patient complained of dizziness and excessive perspiration. When he was given orange juice the patient soon felt better. In the morning of September 4, 1952, patient received no breakfast because of a blood glucose tolerance test was contemplated. Patient became sullen, and at 8:05 A. M. he was sitting with his head hanging down. The patient recognized the writer but was disoriented as to place. He permitted the withdrawal of 10cc of blood, but then he became uncooperative, and refused to drink the prepared sugar water. The patient's skin then became a grayish color and he refused to cooperate for a stomach tube introduction. As he became very resistive, he was restrained and a Levine tube was introduced through his nose, and sugar was given to him. Then the second blood specimen was withdrawn, and the patient was released from the restraints. However, he was staggering and tried to reach the writer and was muttering threats. Patient was restrained again, and a second dose of sugar and water was given through a nasal tube.

Patient gradually became more cooperative. The laboratory report came through the same day and reported, that the first specimen of blood sugar level was 34mgm. per per cent. This and the later repeated blood sugar test revealed always a flat curve, and a low level of fasting blood sugar. A few days later, patient claimed to remember that a tube was put into his nose, but claims that he didn't remember to have threatened the writer. From then on, patient was always cooperative until his discharge. A psychometric examination revealed that the patient had a central I.Q. of 98 average. Patient was given the Wechsler-Bellevue Rorschach, Drawings, TAT, and the Bender Gestalte tests. These tests revealed that in a structural situation patient is able to function well. However, in a non-structural situation, patient's associative processes are poorly controlled. "Tense and anxious, the patient is overly aggressive, hostile to environmental stimulation. He is prone to react in an aggressive, hostile, impulsive way when his momentary desires are not satisfied." Personality study revealed that patient is basically aggressive, hostile, and impulsive, but these feelings are usually under control. Only when patient is under a hypoglycemic attack these controls are removed and the patient reacts to his impulses. On November 4, the patient was started on cortisone treatment on the advice of the endocrinologist which treatment was continued for three weeks. During that period of time, patient's blood sugar level was raised to almost normal. Patient stated that he felt rather tense and irritable. After several laboratory tests, EEG, and consultations, the psychiatric diagnosis of chronic brain syndrome associated with other disturbance of metabolism (Hypoglycemic attacks due to Adenoma of the Pancreas) with behavioral reaction was offered.

On December 10, 1952, patient was discharged and transferred to the Delaware Hospital for further laboratory studies and for an exploratory laprotomy with biopsy. On December 2, 1952, patient had a biopsy which revealed an islet cell adenoma. On January 15, 1953, while still in the Delaware Hospital a Whipple procedure was done on this patient. The final diagnosis was pancreatic adenoma, with hyperinsulinism and pancreatitis. During his second admission in the Delaware Hospital the patient again had an hyploglycemic attack while being prepared for a blood glucose tolerance test. On February 18, 1953, the patient was discharged from the Delaware Hospital. On April 3, 1953, patient was readmitted the third time to the Delaware Hospital because of an epigastric discomfort with nausea and anorexia. However, a final check-up revealed that the gastroenterostomy was well functioning and that his blood sugar level was normal. Patient was discharged April 9, 1953. On July 20, 1953 patient was contacted and he claimed that since the operation he has never had any "such spells as I used to have."

Comment

This patient professed to have had alcoholic habits, which habit in his late years marked the beginning of the hypoglycemic attacks with all its symptoms. Later on, when patient for years was not taking any more alcoholic beverages, his hypoglycemic attacks still resembled that of a (drunkard) alcoholic intoxication.

Summary

Presentation of a patient who for five years was suffering from hypoglycemic attacks which at times were manifested by epileptic-form seizures but other times the symptoms resembled that of an acute alcoholic intoxication. However, laboratory examinations, explorative laparotomy and biopsy revealed that patient was suffering from an islet cell adenoma of the pancreas. After removal of the pancreatic adenoma, the patient had no more hypoglycemic attacks.

TREATMENT AND PROGNOSIS OF ALCOHOLISM

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Since approximately ten per cent of first admissions to hospitals for mental diseases are of an alcoholic nature, special attention should be given to the treatment and prognosis of alcoholism.

A thorough physical and mental examination will usually serve as a guide to successful therapy. Frequently, alcoholism is but an early sympton of some other mental illness, and therapeutic success will depend to a great extent on early diagnosis and attention to such underlying psychoses as schizophrenia, affective psychoses, general paresis, and so on.

Chronic alcoholics often suffer from severe personality disorders and their tolerance for meeting the usual stress of life is so low that they cannot face reality without resorting to alcohol. It temporarily relieves discomfort, frustrations, and conflicts, removes inhibitions and brings pleasurable fantasies closer. In an effort to maintain this state of pleasure the addict continues to use alcohol excessively. Also of importance in the treatment is to ascertain whether the patient uses alcohol because of external frustrations, or because of loss of self-esteem, with concomitant depressive trends, whether he has been able to maintain contact with his environment and drinks in company, or whether alcohol has become a substitute for any external interests. To help an alcoholic reach his goal, namely, total and permanent abstinence, close cooperation between patient, physician, psychiatrist, nurse, social worker, clergyman and various societies are necessary.

The therapeutic difficulty may lie in the psychopathological craving for pleasure, not in discomfort as seen in other illnesses, or in his wish to undergo therapy to feel physically better so that he once more can enjoy the effects of alcohol.

Since this type of illness is rather complex in its nature, a combination of psychological, social and medical approaches may give the best results.

The task of the psychiatrist may often be limited to a psychiatric evaluation, to restore hope for the patient that recovery is possible, and to bring various agencies into interplay for a maximum therapeutic progress. A psychiatric social service is of great benefit in the evaluation of social environment difficulties and often can be instrumental to the alleviation of the conflicts. The social worker may employ auxiliary help from other agencies such as Alcoholics Anonymous, Salvation Army, and religious organizations. Alcoholics Anonymous has been in many instances constructive in the rehabilitation of alcoholics. In this organization, the principles of group therapy are utilized. The members feel accepted and free to express their strivings to previous alcohol addicts, and in turn their solicitude and understanding for others may play an important role in rehabilitation and ultimate cure. Adequate and prompt medical attention is invaluable in the alleviation of various symptoms and at the same time has a definite psychological effect. Deconditioning, by developing a distaste for alcohol through the use of various drugs may be an adjunct to other forms of therapy. However, considerable cooperation on the part of the patient is required.

Finally, patients who present symptoms of mental deterioration, panic states or psychoses require institutional care because they can not be handled in any other therapeutic setup. In this way they can no longer obtain alcohol, and the patients' welfare as well as society are protected. Employed are, concomitant with psychiatric treatment, physical exercise, occupational therapy, and social relaxation in an effort to have the patient lead as normal a life as is possible.

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It must be borne in mind, that the constant and excessive use of alcohol may often be an obvious symptom of an underlying psychotic condition. Therefore, the patient's personality make-up must be taken into account for a thorough understanding of his difficulties, which in turn will influence prognosis and therapy.

From the following table can be seen that, of 32 patients who were admitted with a history of alcoholism, seventy-five per cent suffered from an underlying psychosis, and only twenty-five per cent used alcohol as an escape from their anxieties, guilt, and frustrations.

Table 1

Chronic Brain Syndrome, associated with Central Nervous System, Syphilis	3
Chronic Brain Syndrome, associated with Convulsive Disorders	4
Mental Deficiency	2
Sociopathic Personality Disturbance	1
Schizophrenic Reaction	10
Affective Reaction	3
Chronic Brain Syndrome associated with arteriosclerosis	1
Chronic Brain Syndrome, associated with Alcoholic Intoxication	4
Delirium Tremens	3
Acute Hallucinosis	1
	32

The above tabulation, however, may be misleading since many of the patients with acute alcoholic intoxication are treated in various other institutions. An effort of rehabilitation is started as soon as the acute stage has passed, and only some of them require hospitalization in a mental institution.

Although there is no specific cure for alcoholism, various symptoms can be corrected so that the patient can return to a useful life in his community.

THE CONVALESCENT CARE OF RHEUMATIC FEVER IN CHILDREN

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Among the several services, and not the least significant, at the Governor Bacon Health Center, is the one for children with rheumatic heart disease. The convalescent care of rheumatic fever poses problems not only medical but social, educational, phsychological and psychiatric, as well.

Governor Bacon Health Center admits rheumatic heart children in the sub-acute stage of the disease for convalescence in cases where home conditions are inadequate to provide an environment conducive to improvement. Through a few more or less typical cases we will try to show how these aims can be and are being fulfilled under the conditions available at the Center.

Case 1. M.D., born 6/25/42, white girl, admitted 4/7/52 with a history of rheumatic fever since January 1952; hospitalized at the Nanticoke Memorial Hospital at Seaford, Del., since Feb. 14, 1952, after having been ill at home for five weeks with pain in the legs, bad general feeling, and elevation of temperature. She was treated two weeks at home before hospitalization, had received salicylates, Cortisone later at the hospital, showed improvement after six weeks of hospitalization, but became worse again at home after discharge, with a temperature up to 102, tachycardia up to 120, and was referred to Governor Bacon Health Center.

On admission here the physical examination showed a fairly well developed girl in no acute distress with normal temperature and with complaints of slight pain in the left knee on movement. A moderately loud systolic murmur was heard at the apex of the heart and over all precordium, pulse rate was 120, rhythm regular, no marked enlargement of cardiac dullness on percussion, blood pressure 124/80. Tonsils were enlarged and diseased. No marked swelling of the right knee or other joints was noted. Erythrocyte sed. rate was 16 mm./1 hr. (Wintrobe) on 4/9/52, urine, negative. Blood: RBC 3.78; Hgb. 11.3 (73%); WBC 14,900; Polys 62; Lymphs 35; Eosin. 1; Monos. 2. Kahn negative. WBC was down to 9,950 on 4/17/52. X-rays: (1) on 4/8/52: Slight fullness of the pulmonary conus and a rather marked increase in broncho-vascular markings involving the middle zones of both lung fields. Lung parenchyma clear. (2) on 4/30/52 (6' film): no enlargement of the cardiac shadow, some fullness of the pulmonary conus suggesting mitral valvular disease.

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Patient was put on strict bed rest, Aspirin grs. V q.i.d., ascorbic acid 100 mg. daily, multivitamin and mineral capsules 1 of each daily. She adjusted well to the routine, played quietly in her bed, was a good natured, quiet and rather shy child.

EKG on 5/3/52 showed normal tracing. Pulse rate went down. Since 5/19/52 she was allowed bathroom privileges, but she had to be wheeled there. Heart murmur was less intense. Throat culture on 5/27/52 showed many colonies of Beta hemolytic streptococci; Staphylococcus aureus also was present.

In June she got a moderate tonsillitis and the erythrocyte sed. rate went up to 32 mm./1 hr., corrected on 6/24/52, but was down again after that. She was treated for the tonsillitis with penicillin injections.

In July she was allowed to bathe herself in the tub.

In August she was allowed three trips daily to the bathroom in wheelchair and later gradually to walk on these trips. She has been very quiet and cooperative at all times, but later, in September, she started to show some disobedience, became uncooperative and impudent on occasions, apparently was influenced by less well-behaved children. Privileges were taken off for some few days, and she was isolated in a separate room.

In October her behavior improved. Sed. rate remained normal, heart murmur was soft.

At the end of November she again had an attack of tonsillitis with elevation of temperature up to 102.4, was treated with penicillin, on strict bed rest, and recovered soon. In December she was allowed gradually to be out of bed and went on pass for Christmas holidays. During the time from December 1952 to March 1953 four diseased teeth were extracted with prophylactic penicillin on each occasion. Sed. rate remained normal. In view of the previous attacks of tonsillitis, tonsillectomy and adenoidectomy was considered and performed at the Center by Dr. Shapiro, Otolaryngologist, on 4/15/53, with preventive pre- and post-operative injections of penicillin. The postoperative course was uneventful; her behavior improved as she was up and around in the ward.

Some school work was done at the Center as soon as the condition allowed it, first with teacher at the bedside, later in the regular classroom, and the girl showed satisfactory achievements. She had no complaints during the last months at the Center and behaved well. The heart murmur still persisted, but was less loud. Blood pressure on discharge was 118/70. After the home conditions of her parents were followed up by our Social Service Department, she was discharged on June 16, 1953, with recommendations to be checked up at regular 1-2 month intervals by family doctor, or, when possible, at a heart clinic.

Case 2. Y. N., born 9/20/40, Negro girl, admitted 10/31/51 with diagnosis of rheumatic heart disease. She had been hospitalized at the Beebe Hospital, Lewes, Delaware, from April 13, 1951 to May 7, 1951, had been ill reportedly for four months previously with enlargement of cervical lymph nodes, sore throat in the beginning, followed later by acute precordial pain, lower abdominal pain, vague joint pains, spitting of blood-tinged mucus. A soft systolic murmur was discovered over the whole cardiac area and split-second sound, no enlargement of the heart. EKG showed some myocardial damage, as reported. She was treated with salicylates and penicillin at the hospital and was discharged to her home on Feosol, salicylates and bed rest. Because of inadequate care at home she was referred to the Governor Bacon Health Center.

Physical examination on admission revealed a fairly well-developed Negro girl, markedly weak, with somewhat atrophied leg musculature, apparently because of prolonged bed rest, and a systolic heart murmur was heard in all areas, best at the apex, murmur was transmitted to the axilla. Heart rate and rhythm were normal, no enlargement of the cardiac dullness. Tonsils were hypertrophied and diseased. There was a slight pain in the hip joints on motion. Chest x-ray on 11/7/51 showed no enlargement of cardiac shadow, some fullness of the pulmonary conus, and general increase in vascular markings. ESR was normal, on admission: 5 mm./1 hr. (Wintrobe), and all other laboratory findings were normal. She received the routine treatment: bed rest, aspirin and vitamins. Her general condition improved gradually, with some relapses, however.

On 12/1/51 she had a sudden attack of severe cardiac pain, but improved soon. From 2/29/52 to 3/4/52 she had acute tonsillitis with temperature up to 101.8, but the heart condition remained without change.

In April, 1952, she was allowed some physical activities and her general condition improved.

In May transfer to the cottage group was considered by our consulting pediatrician, not only because her clinical condition justified the change, but also because she was quite active and a behavior problem on the ward. She frequently caused disturbances and upset patients in her own and other units. When a repeat chest x-ray (5/8/52) showed normal heart and lungs (6' film), she was transferred to the cottage on 5/28/52. Here she became too active and accidentally sustained a greenstick fracture of the distal end of left radius, which healed without complications. On 6/4/52 she was re-admitted to the cardiac unit following several spontaneous epistaxis, but was sent back to the cottage the next day, and remained there until 8/11/52 when she was admitted again to the cardiac unit. She developed in between some attacks of sore throat and generally was not feeling well. Her ESR was up to 29 mm. on 7/22/52, but went down again to 10 mm. on 7/29/52 and remained normal until discharge. She was put on bed rest, but some activities were reassumed soon, as the subjective feeling improved and in November she was up again in the ward and behaved fairly well; she had, however, some spells of misbehavior and disobedience.

In general, the subsequent course was uneventful, except that she had German measles in February 1953, and tonsillectomy and adenoidectomy on 4/15/53 with a moderate bleeding the following night, stopped by pressure. She has done generally good school work, functioning however at a low average intellectual level. She was disturbed emotionally and of somewhat selfish and domineering character. Her behavior and school achievements markedly improved when she started to attend school in the classroom with other children in November 1952. After the school period, 6/10/53 to 7/5/53, she was on trial visit at home and returned to the Center in good condition. EKG on 7/9/53 showed a probably normal tracing, perhaps with a slight tendency to right axis shift. ESR was 7 mm. on 7/7/53. After Social Service investigation about her home conditions, she was discharged on 7/10/53, essentially improved and able to assume everyday activities at home, with some restrictions. Further regular medical check-ups were advised.

Case 3. F.S., born 3/19/42, white girl, admitted 2/16/52, transferred from the Delaware Hospital in Wilmington, where she was hospitalized since 1/28/52 with fever and swollen and painful knee joints. Rheumatic fever and rheumatic heart disease was the diagnosis. This was apparently a recidive, because as reported, she was an outpatient at the cardiology and pediatric clinics of the named hospital since 1943 and in 1948 a heart murmur was first noted. Tonsils and adenoids had been removed in 1949. There was a family history of rheumatic fever and heart disease. Her father was a patient at the Center from 6/29/52 to 7/20/52 following heart surgery for rheumatic heart disease (stenosis of mitral valve). The following clinical report on the child was obtained from the Delaware Hospital: Loud blowing, grade IV systolic murmur in all areas on admission. Both knee joints were swollen, painful, with fluctuation, temperature 100.2. Chest x-ray normal, except for slight increase in bronchovascular markings. EKG showed a prolonged P-R interval. Throat culture: Neisseria type predominating. ESR elevated: 29 mm., 27 mm., and 24 mm. CBC essentially normal, Mazzini negative, tuberculin test positive, 2nd strength. She was treated with aspirin and responded well to treatment.

On admission to Governor Bacon Health Center the child was afebrile, with no pain or swelling of the joints. A systolic heart murmur was heard at all valve areas, loudest in the 3rd interspace at the left sternal border. Chest x-ray on 2/22/52 showed normal heart and lungs, C.B.C. and urinalysis were negative. ESR was constantly elevated until June 1952, highest 41 mm., then went down and was 10 mm. to 1 mm. until discharge. The patient had some relapses: swelling of the ankles in March 1952; elevation of temperature up to 102° with some pain in the left shoulder from 5/25/52 to 6/2/52; received Penicillin, and improved. No change in the heart murmur was noted after that. ESR went down to normal and since July patient was allowed gradually increasing physical activities. She was all the time on routine medication, aspirin and vitamins.

This girl was a behavior problem. At times her acting-out was impossible to manage. She was uncooperative, disobedient, disturbed and disturbing. This pattern apparently had little influence upon her physical recovery. Her school work, at first spotty and slowed by her emotional disturbances, markedly improved when she was able to attend regular classes.

Throat culture on 5/26/52 showed staphylococcus aureus predominating with occasional colonies of beta hemolytic streptococcus, pneumococcus and a few non-hemolytic streptococci. EKG on 5/3/52 showed normal tracing.

She was discharged on January 17, 1953, after her parents moved to a new home provided by a charitable organization. She was referred to the cardiology clinic of the Delaware Hospital for further regular checkups.

Case 4. F. A., born 6/21/40, white boy, admitted on 8/28/52. Poor home conditions: mother died in tuberculosis sanatorium some 7 years ago, father and step-mother drinking heavily. The boy was admitted to the Delaware Hospital in Wilmington on 7/10/52 with acute fever, pain in the legs, swollen and tender ankles, tachycardia. A few days after admission systolic heart murmur was detected. ESR was 30 mm. EKG showed normal tracing. Patient responded well to salicylates and was discharged to his home to bed rest. In view of inadequate home conditions admission to the Governor Bacon Health Center was requested.

Physical examination on admission here revealed a 12-year-old boy, fairly well built and developed, not acutely ill. A harsh, fairly loud systolic murmur was heard all over the precordium, but best at the apex, was transmitted well to the axilla. Rhythm was regular. Tonsils were hypertrophied and diseased. X-ray on 8/29/52 showed normal heart and lungs (6' film). ESR was normal on admission (1 mm.) Throat culture on 9/2/52 showed many colonies of staphylococcus aureus, staphylococcus albus, few colonies of non-hemolytic streptococci and N. catarrhalis, rare colony of pneumococci.

Patient was put on the routine medication (aspirin and vitamins) and on strict bed rest.

This boy presented a serious behavior problem, was withdrawn, anxious and depressed, hostile and stubborn. He did not respond to the friendly approach of personnel, was disrespectful and resisted to program of prolonged bed rest. With all this, his intellectual efficiency was found as average, with a high average capacity.

After a month he was allowed to go to bathroom in wheelchair once daily, but he took much more activities by himself. Appropriate play therapy to keep him more in bed was applied, with some positive results. ESR remained normal with exception of one slight rise to 14 mm. on 10/6/52 and generally the course was uneventful concerning the physical condition. But the behavior was a problem all the time. He got upset on occasions, and went into a rage, once threatening to kill another patient, often used bad language, and on one occasion was detected in some homosexual activities.

On 4/15/53 tonsillectomy and adenoidectomy was performed by Dr. Shapiro. Recovery was uneventful, except for a profuse epistaxis six days later.

Some school work was started in October, and a tremendous improvement in the academic achievements was reported when he was allowed to attend the regular school of the Center. His behavior also improved, he was more sociable and cooperative. As his physical condition appeared to be fairly stable, transfer to the cottage group was considered, and he was transferred on 6/13/53. The prognosis is promising insofar as it concerns the behavior problem. His physical activities have to be still somewhat restricted; he is not allowed to participate in gymnastics, swimming, etc. ESR was 8 mm./1 hr. on 7/16/53. EKG on the same date showed normal tracing.

The cases reviewed represent a relatively benign course of the disease and perhaps nothing of the so-called "interesting." But in medicine every case is, and should be, interesting in one or another aspect. Especially that can be said of rheumatic disease where more, perhaps, than in any other ailment the future of the patient depends on proper care being given at and for the proper period of time. To afford this critically important care, when it cannot be given at home, is one of the multiple aims of the Governor Bacon Health Center. That it can be successfully accomplished at the Center is a resultant of the continuing and cooperative efforts of several professional disciplines, namely, medical, nursing, social service, education, occupational therapy and psychology. The important recreational and diversional contributions of a dependable volunteer organization eliminates program lacunae.

The four cases reviewed here in the age range from 10 to 12 years on admission. They remained on the Cardiac Unit for 9½ to 20 months after the acute stage in general hospitals or at home. Following apparent stabilization of the condition and discharge from bed rest, the children remained on the Unit for observation for a further 6 to 8 months.

The greatest problem in the day to day care of these cases was and still is: how to keep children who are feeling subjectively well at complete bed rest. This is a most trying task with children who are docile and well adjusted but with children who are emotionally disturbed, acting-out, aggressive and defiant it is a matter which tests every therapeutic resource available. A program of extreme flexibility is essential and one which admits of great diversification. The objective of all planning in the convalescent care of the cardiac child is to insure the prompt arrest of the rheumatic process with the least constraint and depressing monotony for the child and the inclusion of generous amounts of interests and activities which will promote normal emotional growth and development. Attending and nursing personnel is often scarce, and the children are sometimes very difficult to manage. It is not easy to find satisfying play and acceptable pastimes for the age group of our patients which fall within the necessary physical restrictions that are clinically necessary.

School work is started as soon as possible with the teacher at the bedside in the beginning only for a half to one hour, one or two times daily, and gradually increased with the child's enlarging tolerance for effort and concentration. Watching television, first in bed, then in wheelchair, radio, record players are appropriate items and are used as far as available. Psychological evaluation and psychotherapy, when needed, is of much help. Adequate isolation is needed to protect these children from the colds, sore throats and other acute infections which children from other hospital units may carry. Even after proven stability of the condition is obtained, prolonged observation before discharge is necessary. The six or more months used in the above-mentioned cases seem, perhaps, to be sufficient in our experience. It is difficult to keep the patients much longer at the Unit at this stage because of behavioral reasons and the child's social and emotional need.

PSYCHOSOMATIC ILLNESS

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We find increasing emphasis in the literature on the recognition by the general practitioner of "psychosomatic illness." It should also be stressed that it is just as important to recognize that psychosomatic illness or seeming psychosomatic illness may have a basis in fact. It is quite well known that psychogenic factors play an important part in physical illness and that there is a positive correlation between types of people and certain illnesses. It is perhaps not as well known that although patients often have no actual physical basis behind their complaints, all

(*Concluded on Page* 228)

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Editorials

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Psychiatric Research Possibilities In Delaware

Recently the Council of State Governments published a report to the Governors' Conference on "Training and Research in State Mental Health Programs." Mr. Frank Bane, the Executive Director of the Council, in the foreword of the 350 pages of the report states that: "The present report is the result of a request by the Governors' Conference in 1951, that the Council undertake a study with respect to ways in which the states might work toward prevention and cure of mental illness. The Governors asked that it include:

"1. A survey of methods of training personnel and conducting research into the causes, prevention and cure of mental disease;

"2. An investigation of the possibility of setting up in less populous areas regional mental health bodies which could pool the training resources and research of a number of states in a common fight against mental illness; and

"3. An inquiry into the possibility of some over-all mechanism whereby the states could plan and coordinate their research and training progams toward a mutual goal of preventing mental illness and reducing the population of mental institutions.

"The resulting report thus centers on training and research. Although it points to no immediate solution to the problems of mental illness, it indicates that adequate training and sustained research are prime essentials if we are to make headway in preventing mental illness and, eventually, in reducing the population of state mental hospitals. And, on the basis of the evidence obtained and the views of specialists in the field, it indicates means whereby state mental health systems may increase the quality and extent of training and research.

"In conducting this study, the Council has worked directly through the offices of the Governors of the states. It has had the full cooperation of all state departments and agencies concerned with mental health and of hundreds of individual research scientists in state hospitals, universities, clinics and other institutions. These departments, agencies and individuals have supplied the Council with most of the information on which this report is based. The Council is grateful to them for their invaluable aid.

"Advice and assistance by an outstanding Advisory Committee guided by the Council in the planning and conduct of the study.* The urgent need for extending the area of prevention calls for increased research to determine the relative value of various new preventive measures. Future studies, for example, should evaluate scientifically the effectiveness of early treatment measures, such as those of clinics and child guidance centers, the results of improved prenatal care to reduce congenital brain damage, new chemicals which may prevent the onset of some diseases, the usefulness of school classes in 'human relations' and the result of improvement in community and family environments. Since it is generally agreed that the foundations of mental disease are most commonly developed in childhood, studies of biological, psychological and social development of children should be stressed. The kinds of training and research programs to be undertaken by the states should be determined by individual state resources and needs."

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*Your Managing Editor is a member of the Advisory Committee.

The state of Delaware offers unique opportunities for psychiatric research. The state is small and the entire population is psychiatrically covered by the Delaware State Hospital and the Mental Hygiene Clinic, both of which are closely associated and under the administration of the Superintendent.

Among the many areas of research, a few will be singled out for discussion. It is now the growing trend in mental research to establish population samples which lend themselves to comparative analyses. Such studies require, however, continuity of observation and stability of samples. These requirements are easily met in Delaware where it is relatively easy to stay in contact with patients who live in the community and where, on the other hand, patients who are in the hospital are intimately known to the staff physicians.

Attempts have been made recently to compare hospital population samples of today with those of years prior to the modern era of treatment. While many of such studies suffer from lack of information concerning follow-up of patients, such a study could be quite adequately undertaken in the State of Delaware where the overwhelming majority of patients, who were treated at the Delaware State Hospital, are still in the State of Delaware. In this way, intensive follow-up studies could be organized which would produce a fairly adequate sample of patients' life curves who entered the hospital. It would then be possible to arrive at some tentative conclusions with regard to spontaneous recoveries and intrinsic tendencies of certain mental disorders.

The familial incidences of certain mental and nervous disorders can be studied quite adequately in Delaware since the overwhelming majority of members of certain families have been studied either at the Mental Hygiene Clinic or at the Delaware State Hospital in case of multiple incidences of disorders.

The Delaware State Hospital is associated with the University of Pennsylvania Medical School and research necessitating laboratory studies has in the past been undertaken jointly by the hospital and the Department of Physiology and Psychiatry of the University of Pennsylvania. This association permits the organization of research projects which involve biological studies.

There are various other research projects in the area of preventive psychiatry, sociology and social psychiatry which could be organized under almost ideal conditions in view of the fact that the smallness of the State permits the organization of good population samples on which to base such studies.

It is necessary to obtain funds for establishing facilities for such a department of research.

PSYCHOSOMATIC ILLNESS

(Concluded from Page 226)

physical means should be exhausted before a diagnosis of a Psychophysiologic illness is made.

I point to the case of one D.T. This fifty year old patient was first seen after she had refused to eat food for four weeks. She had a psychiatric history that went back many years. At that time, the patient, who was a schoolteacher, became too conscientious. She was with her pupils not only during school hours, but also afterwards. She took them to the dentist, greeted their parents and so forth. At the age of 33, she suddenly left her job and refused to work. She suffered from anorexia, insomnia, and became very withdrawn. At that time she had delusions concerning food. She was hospitalized in a psychiatric institution for several months. Following her discharge she never worked, and remained at home for several years not associating with anyone. Then she changed, and for a few years socialized and acted rather like a normal person with no physical complaints. One and a half months prior to her hospitalization she began to complain about food again. She said that it hurt her to eat. She belched almost continuously and for four weeks prior to her hospitalization, she subsisted on nothing but water.

On admission, the patient was markedly emaciated and weak. She stated that her stomach hurt if she ate food. She weighed only 67½ pounds (usual weight was 85 pounds). A G.I. series revealed nothing abnormal except a moderate ptosis of the stomach. Urinalysis was negative. RBC, 4.27 million; Hb, 86% BUN, 12 mgm.%; Blood sugar, 90 mgm.%. An electrocardiogram was essentially negative. She was oriented in all spheres. Her conversation was relevant, coherent, and spontaneous. She was inclined to be sarcastic. She refused to eat, stating that she could not digest her food, saying that it hurt her stomach. She was given intravenour feedings of glucose, protein hydrolysate and vitamins. Her weight continued to fall, however, and dropped to 62 pounds. Tube feedings of eggnog were planned, but patient decided to drink it instead. Electro-shock treatments were given, and after three treatments she began to eat fairly well. Three more treatments were given after which she had a fairly good appetite. A diagnosis was made of psychophysiologic gastro-intestinal disorder. On the thirtieth hospital day, she again complained of a feeling of fullness in the abdomen. She had some gastric distension. She was given an enema with good results. On the following day, she was given another enema. The distension, however, persisted. She was given prostigmine, but appeared to have very little response. At this time, she again refused food. On the morning of the thirty-third hospital day, she became dyspeneic and expired shortly afterwards. An autopsy revealed the cause of death as acute gastric dilatation. The stomach extended from the symphysis pubis to the xyphoid process.

This case serves to point out that although the patient gave every evidence of a psychosis, and had a previous similar episode which cleared under psychiatric treatment, there was an actual physical basis for her complaints. There is a tendency to feel that patients cry "wolf," and although this is true in many instances, all methods should be exhausted to determine the possible existence of any underlying physical ailment. This is especially emphasized in the case of the chronic complainers who are not immune to a real illness any more than those who do not complain. This brings up the question as to whether there is a causal relation between the thought and the illness. It is quite well known that peptic ulcers occur much more frequently in certain types of persons than in others, notably those with a great deal of anxiety. This is probably true with many other illnesses although it can not be so clearly demonstrated.

FACTORS CONTRIBUTING TO DISTURBANCE IN SUPEREGO CONTROL IN EMOTIONALLY DISTURBED INSTITUTIONALIZED CHILDREN

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Introduction

As all workers with emotionally disturbed children well realize, there are a great number of factors contributing to disturbance in superego control. The problem is a complex one. The following paper is an attempt to note certain specific factors which contribute to disturbance in control of impulses which are socially undesirable or unacceptable. The orientation of this paper is structured basically in terms of Freudian theory. Fortunately, this school of thought has contributed a topological schema of personality which lends itself readily to child observation and psychotherapeutic work. According to Freud's topology personality is, structurally speaking, divided into three basic components: the id, the ego, and the superego. Briefly, the id is that portion of the personality which may be considered as a reservoir of primitive impulses. This is a basic source of impulsive behavior. The ego is the agency which may be considered as the thinking and perceiving portion of personality. It is the agent of rational thought in psychological functioning. Such functions as logical reasoning and judgment are contributed by the ego. Planning, foresight, and anticipation of the consequences of action are activities which the ego directs. The superego is generally considered to be an extension or outgrowth of the ego. It is essentially an automatically functioning unit of the personality. It is basically concerned with moral values and questions of right and wrong. That portion of the personality which automatically informs or warns one that he should not do something which is asocial is included as a function of the superego structure. It is essentially a prohibitor of impulses to behave in unacceptable or asocial ways. In everyday life the superego is considered as the "conscience" of a person. It develops in the growing child along with his general personality growth.

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In dividing the dynamic personality into three component parts one must accept the fact that this division is a schematic one necessary for purposes of study and exposition. Actually, of course, the personality of the human individual works as a functional unit. As far as the cases on whom the following discussion is based are concerned, all may be considered to have "weak" egos or, in other words, inadequately integrated ego structures. These individuals consequently have an abnormal dependence upon superego control of aggressive impulses and unacceptable behavior. Ideally, healthy ego control is the guiding force in normal behavior. In the psychologically normal individual ego and superego functions interact so effectively that it is difficult to distinguish between the two. With many of our emotionally disturbed children we find that the ego structure is completely inadequate for successful management of life activities. Prohibition of destructive anti-social behavior is guided not by a strong, reasonable ego that considers the irrationality and unfairness to others of impulsive, hostile behavior but by a superego that has been more or less incorporated through association with adults into the child's personality. The superego functions in a psychological way that "Thou shall not because it's bad." As is the case with the ego, with most of our cases the superego is an immature organ. Events concerned with unapproved or delinquent behavior are matter of factly considered to be "bad" with little or no concern with the causes and consequences, of this type of behavior. It is a tenuous form of control in any case but frequently it is sufficient to enable a person to adjust to the demands of society as far as the control of forbidden impulses is concerned. If the ego portion of the personality remains weak the individual very likely will live a disturbed and unhappy life regardless of the control function of the superego. It is our purpose in the following notes to consider certain factors which we have observed to impinge unfavorably upon the superego control of undesirable behavior. We might emphasize that in practicality we deal with the total personality. It does seem necessary for descriptive purposes, however, to consider the following phenomena under the heading of Superego Disturbances.

FACTORS CONTRIBUTING TO DISTURBANCE IN SUPEREGO CONTROL

Johnson, in a paper titled "Sanctions for Superego Lacunae of Adolescence," states that ". . . parents may find vicarious gratifications of their own poorly-integrated forbidden impulses in the acting out of a child, through their conscious or more often unconscious permissiveness or inconsistency toward the child in these spheres of behavior. The child's superego lacunae correspond to similar defects of the parents' superego which in turn were derived from the conscious or unconscious permissiveness of their own parents."[1] As Johnson points out in her paper this situation is not peculiar to adolescence. As a matter of fact we find it quite frequently in our population of children which ranges in age from five through fifteen years. As a rule with patients manifesting this type of condition we rarely find generalized inadequacies of the superego structure but more likely a lack of superego in a certain circumscribed area of behavior. This is a lacuna of the superego. Children who manifest this may do well in most spheres of activity. They may go to school regularly, get along with their peer group, obey their house counselors, and in general cooperate reasonably well. From time to time these children will manifest certain disturbance in a particular area. For example, we have seen children who have apparently been making a reasonably adequate adjustment at the Center who, following a home visit to a parent with a serious superego lacuna, have with only the slightest precipitating factor engaged in serious acting out upon return here. In our observations there usually is a precipitating environmental factor to be considered, but the basic force at work is the sensitivity of the child to that area in the superego of the parent which is essentially delinquent in nature. If the parent is anti-social in a certain area and has accepted this, at least to some degree, in his set of values the child will understandably develop a similar defect. Frequently, of course, severe conflicts may follow expressions of this lacuna in the child's personality structure.

Another circumstance in which the parents are directly involved is one in which the child senses consciously or subconsciously negative feelings which the parent has toward the institution or personnel in the institution. This unhappy circumstance can play havoc with a child who has difficulty in controlling his hostile impulses. A child may have a certain amount of resentment against the institution or personnel. This can usually be handled satisfactorily. However, when the parent expresses negative feelings toward the agency we find that the child will feel it deeply, and of course, use it as adequate cause, or in other words as a rationalization to act against and defy necessary rules and regulations. Ordinarily, the child would of his own conscience refrain from acting counter to these conventions. It becomes difficult, if not impossible, for the child to do this because of the fact that he has been led on to such actions by the negative feeling held by the parents, as well as his own latent hostile impulses.

Any child, particularly a predelinquent or delinquent, may be quick to utilize for the temporary rejection of the voice of his conscience, (superego control), any asocial "mistakes" or any perceptible superego lacunae in members of the personnel of the institution. Should a staff member have the misfortune to become involved in an event which the child considers to be anti-social or unconventional it becomes an easy matter for the child to utilize this error to express their own latent hostile impulses. They rationalize away the dictate of their own superegos. In such a situation the rationalization system works something like this, "if he can do that and get away with it so can I," or "so and so did that. I am going to too." In a case of more or less permanent lacunae in the superego of personnel it is imperative that the individual be aware of the lacunae or that they do not have direct contact with the children. Otherwise, it would be very difficult to remedy the child's disturbance.

A final consideration is the effect which a group may have upon the control function of the superego. LeBon, in his famous description of the group mind, feels that particular characteristics of individuals become obliterated in a group situation. LeBon, in discussing causes which produce a change in an individual in a group situation, states:

> "The first is that the individual forming part of a group acquires, solely from numerical considerations, a sentiment of invincible power which allows him to yield to instincts which, had he been alone, he would perforce have kept under restraint. He will be the less disposed to check himself from the consideration that, a group being anonymous, and in consequence irresponsible, the sentiment of responsibility which always controls individuals disappears entirely . . . .
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> "The second cause, which is contagion, also intervenes to determine the manifestation in groups of their special characteristics, and at the same time the trend they are to take. Contagion is a phenomenon of which it is easy to establish the presence, but that it is not easy to explain. It must be classed among those phenomena of a hypnotic order, which we shall shortly study. In a group every sentiment and act is contagious, and contagious to such a degree that an individual readily sacrifices his personal interest to the collective interest. This is an aptitude very contrary to his nature, and of which a man is scarcely capable, except when he makes part of a group.
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> "A third cause, and by far the most important, determines in the individuals of a group special characteristics which are quite contrary at times to those presented by the isolated individual. I al-

> lude to that suggestibility of which, moreover, the contagion mentioned above is only an affect.
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> "To understand this phenomenon it is necessary to bear in mind certain recent physiological discoveries. We know today that by various processes an individual may be brought into such a condition that, having entirely lost his conscious personality, he obeys all the suggestions of the operator who has deprived him of it, and commits acts in utter contradiction with his character and habits. The most careful investigations seem to prove that an individual immersed for some length of time in a group in action soon finds himself—either in consequence of the magnetic influence given out by the group, or from some other cause of which we are ignorant—in a special state, which much resembles the state of fascination in which the hypnotized individual finds himself in the hands of the hypnotizer . . . ."

It appears that LeBon's work is relevant to the understanding of ego functioning in a child. We frequently find situations into which a child will be led by the influence of group stimulation. When operating individually the same child would avoid such situations. Apparently group situations have a contagious effect. In a psychological sense this contagion probably is closely related to the individual suggestibility of the child, as LeBon intimated. Unquestionably there are individual differences among children as to the degree to which they may be suggestible to group influence, and consequently in the degree to which their superegos are disturbed by the influence of the group. It appears at this point that those children who have weak ego structures and certain lacunae in their superegos are the ones who have to be watched most closely in order to avoid the deleterious effect consequent to their behavior when in a group situation. All this does not mean to imply that the group cannot have positive effects if its intentions are wholesome. A group with a socially desirable goal may through its influence lead individual members into very worth-while activities. In this case the group rather than working against the superego dictates of the individual members aligns itself with this organ and actually may have a strengthening effect on the ego.

In summary, we wish to emphasize that the above notes are based on observations which we have made over a period of several years of work with children. Most of these observations have been made in an institutional setting. Undoubtedly, there are other factors which result in a breakdown of superego functioning. Also, the points which we have made above are in need of closer scrutiny. They are important if we are to understand the personality structure of the emotionally disturbed child. For psychotherapy to be effective it is necessary that the impact of such factors upon the child be understood. Some of this material may in some instances be worked through in therapy with the child. In other cases environmental manipulation is necessary in order to reduce these factors to a minimum. In any case, a general principle of children's work always applies. No more psychologically traumatic material than the child is able to tolerate should be brought to his consciousness at any time.

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RIGIDITY IN SCHIZOPHRENIA

As Shown By Certain Rorschach Signs

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There is today popular acceptance that within the schizophrenic syndrome rigidity is a common factor. The patient with schizophrenia is apt to show to varying degrees a certain amount of inflexibility or inability to adapt himself to new and changing situations. He will manifest almost a set, stereotyped behavioral pattern irrespective of the differences that are occurring all around him. That such actions are not conducive for adequate adjustment are clearly evidenced. The present study is designed to investigate some indications of rigidity on the Rorschach protocols of schizophrenics.

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Although there are slight differences in the definitions of rigidity amongst investigators, Pullen and Stagner[4] appear to have the most adequate for this study: "A tendency to persist in a previously made response in lieu of switching to one which is more appropriate to the stimulus situation."

The Rorschach protocols used in this investigation are those of fifty-two in-patients between the ages of twenty-five and fifty-one years who have been diagnosed by the psychiatric staff as having schizophrenia. There were no other complicating factors in the picture. These patients were all new admissions and were tested a maximum of one month after admission. The tests were administered prior to and without knowledge of the provisional or final diagnosis. The method of administration and scoring of the responses was done according to the standards of Klopfer and Kelley[2].

The Rorschach test is composed of ten standardized, ambiguous, individual ink blots. The testee is requested to tell what he sees in the ink blots and then proceeds at his own pace. "The Rorschach method reveals the present state of personality. ..... There is no visual perception without selection. This selection depends not only on the anatomy and physiology of the eye but also on the perceiver's psychology, his experiences, his desires, and his expectations."[3]

There are four signs on the Rorschach which may be considered characteristic of rigidity as found in the tests of the population of this study. The first is the subject who utilizes mostly the form or shape in determining his responses to the blot. Over fifty per cent is indicative of rigidity trends.[1] Behaviorally this type of person has either consciously or unconsciously inhibited his feelings. He has adopted the conventional and the correct as a mode of interpersonal dealings, lacks spontaneity and emotional reaction or depth towards others. This defense is erected against surprise or penetration, a means of maintaining control over himself at all times.

A second sign is the responses are mainly of animals. Again, over fifty percent is a manifestation or rigidity.[1] These subjects behaviorally will be rather stereotyped and routinized with limited interests. They remain with obvious factors as another defense against surprise or penetration.

A third sign is a very low number of total responses. Ten or less is considered poor. In this case, the person is very cautious, avoiding a situation for fear of showing too much of himself. Irrespective of what is involved, he rigidly surpresses any reaction, remaining the same from situation to situation. This is opposed to blocking where the patient is just unable to form a concept to the blot.

The final sign is usually indicative of schizophrenia. Here the patient perseverates[1] or responds to each blot with the identical answer, actually showing no concern for the stimulus in front of him. He answers only in terms of his own needs and creations without taking recognition of the ink blot.

It is apparent that each sign is a manifestation of different behavioral forms that rigidity may take. As such, the presence of one sign on a Rorschach protocol may be indicative of rigidity in the patient, the extent varying for each individual. A review of the test scores and calculations shows that of the fifty-two patients examined, twenty-nine had at least one sign of rigidity and fourteen had more than one sign with an overall forty-three patients exhibiting some rigidity. In order of frequency the signs were form, animals, total number of responses and perseveration.

In summary, the popular concept of the existence of rigidity in the schizophrenic syndrome was manifested to varying degrees in 43 of 52 Rorschach protocols of patients diagnosed as having schizophrenia. Four signs of rigidity were used: (1) form over fifty per cent (2) animals over fifty per cent (3) total number of responses less than ten (4) perseveration.

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COUNSELLING MOTHERS OF CHILDREN IN PSYCHIATRIC TREATMENT

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Mother has, in recent years, been the subject of a great deal of comment. She is set on a pedestal, she is knocked off the pedestal. She is condemned as overprotective, rejecting, unfit; she is lauded as all-giving, all-loving, all-good.

In truth, there is no magic alchemy in the delivery room that transforms a human young woman into pure gold. She leaves this room still subject to human frailties, but with the added instinctive urge to protect her child. She sets herself to the task with whatever emotional equipment she has developed thru the years of her life.

One of the earliest recorded accounts of a protective mother is the fascinating story of Moses. You will recall that his mother hid him when he was born, altho Pharaoh had decreed that all Hebrew male infants should be killed. When he was three months old, and too big to conceal any longer, she set in action a daring and ingenious plan. She arranged that Pharaoh's daughter would find him as an apparently abandoned infant, at her favorite bathing place. Being as susceptible to the appeal of an infant as most women, Pharaoh's daughter adopted him. Then, not content with having assured his physical safety, the mother had herself appointed his "nurse," with his nurture, training and emotional development her own responsibility.

The members of the staff of the Mental Hygiene Clinic believe that parents are the most logical and best fitted persons to be entrusted with the care of their children. Most parents love their children, want what is best for them, and are willing to sacrifice in many ways to provide what is necessary for them to grow up to become stable well adjusted adults. There are some few who because of their own problems, are unable to care for their children responsibly, but they are so greatly in the minority as to serve only to point up their difference from the normal.

Many parents have problems, stemming perhaps from unresolved conflicts of their own childhood, which may be reflected in the attitudes and behavior of their children. As the mother observes such trends in her child, she may become tense, insecure, and, as the situation deteriorates, panicky — "I've tried *everything*!" The child reacts accordingly. Many family physicians are referring such children for psychiatric assistance before the damage is irreparable.

Following the psychiatric and psychological evaluation of the child referred to Mental Hygiene Clinic, a staff conference gives careful consideration to all known factors. One recommendation frequently made is: "Therapy for the child (by the psychiatrist) and counselling for the mother (by the social worker)."

Counselling the mother of a child in treatment serves a two-fold purpose. 1.) The social worker is the liaison person between the psychiatrist and parents. Using the medium of the social worker the psychiatrist evaluates his young patient's adjustments outside the clinic setting. 2.) The mother is given an opportunity to work on her own problems in relation to the child. If she feels the need for help, and can give herself to the process in a responsible way, she can gain a great deal from it. Frequently this receptive and responsible attitude solves the over-all problem.

The first few counselling interviews are exploratory. The mother has to test out the new experience to see what it has to offer her; the social worker is meanwhile assessing the mother's ability to make use of what is offered. The mother comes to the Clinic fearfully, knowing not what she will find. She has been the recipient of much gratuitous advice and criticism, and usually feels pretty confused and guilty, certain of only one thing—that she is a total loss as a parent.

Some mothers will find they cannot accept counselling. One mother denies the existence of any problem at all, saying in effect, "This is much ado about nothing, really. I guess all boys go thru such stages, and my Billy is no worse than the rest. Everything will work itself out." She hastens away from this threatening situation, fearful lest her own emotional insecurity be revealed. The social worker, understanding the woman's dilemma, tries to help her leave, if leave she must, in such a way that she may feel free to return when she is ready.

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Another mother, whose son is referred as a delinquent, cannot deny the fact that there is a problem because it is a matter of court record. She does deny that either she or her son had any real part in the development of the problem. She spends the first—and only—counselling hour projecting the blame on bad companions, the neighbors, the school, and the court worker. This mother had come in order to prove to the court her willingness to cooperate, but she does not return.

It must be recognized that such attitudes and behavior are unrealistic attempts to escape from painful feelings of guilt, and that an unreasonable condemnation of the parent serves only to foster further defensiveness.

The following case material illustrates the extent to which a mother can be helped in the counselling process.

Jack B. is 16, the oldest of four children, living in a fairly large community in the central section of the State. As a baby his inexperienced young parents had "followed the book" religiously with strictly scheduled feeding, and no coddling—nor cuddling. When the younger children came along the parents then more mature and experienced threw "the book" out the window, and followed more natural methods of infant care; these youngsters are much better adjusted than Jackie.

The boy probably always felt a little apart from the other members of his family. In adolescence he developed an aloofness, an unwillingness to enter into any family good times, and a silent, superior unresponsiveness to all the overtures of his parents. This kind of behavior is found in some degree in nearly all adolescents, but it aroused in Mrs. B. a terrific amount of guilt for all the real and fancied deprivations to which she had subjected Jackie as a baby. She tried by every means she could devise to assure him of her love and interest in his activities; she brooded over him, she prayed over him, she surrounded him with loving kindness, and of course Jackie wanted none of it.

Mrs. B. used the first three interviews to unburden herself of her feeling of guilt and inadequacy. The worker gave her recognition for what she had been trying to accomplish and support in the changes she was attempting now to effect in her own attitudes.

A good working relationship had by then been established between the worker and Mrs. B. The turning point, at which the mother left the past behind as something she could not now change, came when the worker commented, "You sound like a clucking mother hen!" This expression has since become a family joke between Mr. and Mrs. B.; he uses it whenever her anxiety mounts to the "clucking point."

With lessened tension in that area, Mrs. B. brought out another problem about which she had considerable conflict. Who should come first with her, husband or children? When it was pointed out that one's first responsibility is to one's self; that only in this way could she be to others what she wanted to be, Mrs. B.'s thoughtful comment was, "If I can accept that, I'll be the happiest woman in the world!"

Accept it she did, and in so doing found her rightful place in the family group, and as it developed, in the community. She no longer served her family in a slavish self-effacing way. She took an active part in the political campaign; enrolled in extension courses at the University to complete requirements for her degree. She is now able to let Jack develop as he will, without the "dragging anchor" of an over-anxious mother.

Mrs. B.'s successful use of counselling may be very simply explained: she felt a real need for help, and made conscientious use of what was given her. She could take it. Most mothers can.

SOME REACTIONS OF PARENTS TO PROPOSED INSTITUTIONAL TREATMENT FOR THEIR CHILD

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When parents learn of their child's need for residential treatment because his emotional difficulties are considered too severe to be treated in the community, they have met a serious and perhaps traumatic situation, with which they need considerable help. Such a recommendation might elicit multiple responses and we will discuss a few in this paper. We should point out that these responses are not isolated, but a parent might have a number of varying emotions.

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Most all parents want their child to get along well, to be well liked by others, to succeed in school and in his community relationships. Sometimes, because of a particular set of circumstances, and sometimes because of the parents own personality difficulties which have rendered them incapable of meeting their child's emotional needs, the youngster is in trouble. He may be a serious behavior problem at home and in the community, or he may be withdrawn, unhappy and friendless.

Perhaps the parents have sought out expert help and advice, or perhaps they have seen their child involved in one difficulty or another to the extent that society is greatly concerned about it. In either case the parents are ultimately faced with failure of their child to achieve those things which they would have liked for him. Consciously or unconsciously then they have to reckon with their own sense of failure as parents and perhaps their guilt reactions.

There seems to be different ways of handling this sense of failure and guilt. One is by denial and projection. They may be unable to accept the fact that their child needs help. It becomes the school's problem or the court's problem, and the feeling is "that my child was done an injustice." One parent may blame another parent, and so on. These are the parents who are indeed in need of help because their inability to accept any responsibility for their child's present difficulties indicates their own extreme insecurity. Perhaps they might go along with the recommendation of placement of their child in a residential treatment Center, because it is recommended by some authoritarian figure, but they fight it all the way. They do not cooperate with the treatment plan and through their antagonistic attitude greatly lessen the chances of the child's being helped. This antagonistic attitude is to a large extent, we think, a defense against their basic feelings of inadequacy and against their own guilt feelings. Of course this attitude, too, may have to do with the parents own relationship to authoritarian figures, but it is a defensive mechanism.

Projection and denial on the part of the parent can be such strong mechanisms as to defeat a treatment plan for a child as the parents are blind to the very existence of a problem. The following example describes such a situation. Eddie, an eight year old illegitimate only child, was referred to a community Mental Hygiene Clinic by the school for truanting, a learning disturbance, and poor adjustment to his peer group. The mother, who disliked the father of Eddie, had been living in a stable common law relationship with another man for seven years. She was negativistic and resented interference from a community agency rendering it impossible to work with her at the clinic. She denied any problem and projected the blame for Eddie's difficulties onto the school personnel. Only when Eddie was faced with expulsion from school, a court charge of larceny and commitment to an industrial school would the mother consent to voluntary admission to a residential psychiatric center for children.

In relinquishing her child the mother's intense feelings of insecurity were mobilized as evidenced by her hositility and defiant attitude and outbursts. She transferred her feelings of blame to the house counselor, the school teacher, and the social worker at the residential center. Eddie had no problem other than what the personnel treated. Individual interviews were used by the mother to express her feelings. With help from the social worker she was able to clarify those feelings. The mother was the oldest child of a large family, and after her mother's death she raised her siblings. Several siblings had been sent to industrial schools for delinquent behavior. The mother experienced guilt over the delinquency of Eddie and relieved this guilt by providing material security and keeping this child immaculately dressed and clean. Emotionally her own insecurities and attitude around this child made it impossible for her to give Eddie emotional security. Her progress was slow and her denial of Eddie's problem interfered with Eddie's treatment plan as he knew she did not think he should be in residence. She mobilized such intense feeling that Eddie was released to her for three months after having prepared her in advance for his almost certain failure. After three court appearances the mother was anxious for his return to the Center and was able for the first time to recognize Eddie's problem and work effectively on it.

Another reaction to this sense of failure and guilt is found in the parent where the guilt feelings are so conscious as to be almost overwhelming. Such a parent might be unable to move ahead with placement, or might remove the child from the institution. "If I put my child there he will think I don't love him," may be their thinking. With these parents, then, they react to their conscious or unconscious rejection of the child by extreme guilt to placement. In the case of such parents, some people think that court commitment may be preferable to voluntary relinquishment. It is pointed out by one authority that some, driven by guilt after placement, may seek the release of the child, only to show great relief when blocked by the impersonal authority of the court.

Guilt in the case of Ann was the major factor in her final withdrawal from the residential Center by her parents after two months residence. Ann, an only child, age 11, was intensely uncomfortable with her premature physical maturity as evidenced by her sexual precocity in the school environment. She was emotionally in the latency period but physically could be described as an adolescent. This coupled with her relationships to her parents caused unacceptable, turbulent behavior. The mother a vacillating, passive, intellectually limited woman who rejected Ann from birth . . . was unable to provide limits for her. The father had a strong attachment for his daughter, the chief characteristic of which was overprotection. Placement at the Center was effected only after persistent effort and pressure from the school. At first the father denied a problem and projected the blame for Ann's behavior onto his wife and onto the school. Only he could help Ann. However, by the time Ann was admitted to the treatment Center he had realized and was willing to accept a problem in Ann's behavior.

Realizing the father's neurotic attachment, he was given considerable support when Ann was admitted and was prepared for Ann's adjustment problems. He was able to cooperate for a month in spite of Ann's constant requests to return home. However, the nature of Ann's disturbance precluded extended adjustment problems with her peers and with adults and the father's growing guilt over the separation manifested itself in refusing permission for indicated dental treatments for fear of causing Ann pain. As Ann's dissatisfaction intensified the father's guilt incapacitated him, and he refused to return Ann to the Center after a weekend visit, when Ann had a temper tantrum while en route to the Center. He could not mobilize enough strength to discuss the situation with the Center personnel and reacted by becoming intoxicated for many days. In this instance commitment rather than voluntary admission might have been indicated as a means of insuring Ann's residence at the Center to counteract and control the father's extreme guilt and inability to handle Ann effectively.

Some parents may have a feeling of relief about such a recommendation. This may be due to the fact that there was never a close relationship between parent and child, and they are not resentful of someone else's shouldering the responsibility. Such parents may visit infrequently and show little interest in the child's progress while in the institution. This feeling of relief more often is due to the fact that to the harassed and worried parents some help is being finally offered. The problem has become too great for them to handle and they realize this.

Mrs. S., a nervous, thin, tense woman reacted with immediate relief when told that her ten year old son needed long term residential treatment. Howie, the second of four illegitimate children, all by different fathers, was described at admission as being a restless, destructive, hostile child who had no friends and was uncontrollable in the home and in the community. He was ambivalent toward his mother, was mixed in his identifications, experienced intense feelings of sibling rivalry and was grossly retarded in school.

The mother's relief resulted from overwhelming reality considerations and her own personality formation. She was barely able to care materially for her children since she was unable to abide by the requirements for Aid to Dependent Children and worked to support her children. She recognized that Howie's behavior was beyond her control. Deeper causes for her relief were found in her personality organization which had many aspects of a psychopathic adjustment to life. Her intense pervade insecurities caused her to be incompetent to meet Howie's emotional needs. She was unable to form a stable relationship with a man as she chose unstable, temporary mates. Her rejection of Howie was constantly manifested in her unmet promises to him, her failure to supply necessary commissary money and clothing, and her failure to visit. The goals of treatment, of necessity, would be centered on the child. The nature and longevity of the mother's disturbance made significant change in her personality improbable. Thus the child must remain in residence over a long period of time or the mother must be encouraged to relinquish custody so the child may be placed in a foster home. This case demonstrates a reaction of relief of an incompetent mother. However, there are many instances in which parents react with relief to their child's admission who can effectively use help to change their attitudes around their child and successfully accept their child's return to their own home.

We know that separation is a difficult thing for most parents, as well as children, and unless they are helped with some of their turbulent feelings they continue to be unresolved. It is not an easy step to turn over the physical and emotional well being of one's child to a team of experts. The house counsellors advise, discipline, comfort and do all the day by day things for the child that the parents have always done. Education is taken out of their hands and they do not have the frequent contacts with the teacher, which was once their privilege. In individual psychotherapy, the therapists are trying to help the child to develop inner strengths and reshape some of his attitudes. Their child, in other words, is to be "changed." Perhaps his old and neurotic tie with the parents will be altered. Parents need continuous help from the caseworker in accepting this situation.

The case worker begins to help the parents the moment they come to discuss admission. She begins at this time an evaluation of the parents' attitudes, not only toward the institution, but toward separation from the child. She also makes an evaluation of the potentialities of the parents to understand and change their attitudes. Very often the successful treatment of the child depends upon the willingness of the parents to examine and change some of their basic attitudes.

As this occurs their relationship to the institution may change from one of resentment and mistrust, to one of greater confidence. They begin then to realize that our goal is actually to strengthen parental ties and not to break them.

THE SOCIAL HISTORY — A THERAPEUTIC PROCESS

Marjorie Hubbard, B. A., M.S.S.,*
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"What—? a social history? Talk to my relatives—about me? I'm the sick man, not them! That's just a prying inquisition. What possible help can it be? They will color the picture as they see it!" Yes, so go the comments of the patient and often of the lay and professional community members who never have either given a social history or stopped to think of the value it may be for the persons involved, namely the patient and the relative. Perhaps if we can look at it through their eyes we can get a better idea of why all mental hygiene clinics and hospitals find that a carefully taken social history is an invaluable tool for a sympathetic and full understanding of the problem by the Clinic team, as well as a therapeutic process for the person giving the history.

Before trying to see the values of the social history to those involved in it, perhaps we should glance at what the social worker is endeavoring to learn. Identifying information and factual data regarding the patient's early life, school, health habits and his family life are essential, but are also the most easily secured items as the informant often has little emotional feeling regarding this information.

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However, it must be noted that when he does show emotional tension, anxiety, or guilt about giving these facts, they become areas for the social worker to explore more thoroughly. The real issue to be most exhaustively studied is the problem that brings the patient to the Mental Hygiene Clinic. Behind this are the dynamics of the patient's personal relationships with his family, colleagues, and community as presented by the relative.

Turning now to the actual securing of the social history, we find that usually the patient is told by the referring source that a social worker will be contacting a relative to secure the background information about him for the psychiatrist. At this time he can express his concern over this either by suggesting whom he would like to have interviewed or by declaring that there is no one he wants us to contact. Here the well informed referral source is given an opportunity to discuss the mechanics and meaning of the Clinic program. Such discussion can assist the patient here in deciding whether or not he wishes the services of the Clinic. He should never feel that because it has been suggested to him as a service by which he might benefit that he is obligated to accept the referral unless he really wants to try the service. If the patient has no one he wants us to interview, or if he has no one living within the state or near enough to come to Delaware for an interview, then the background information is given by the patient himself. The advantage of seeing a relative, (usually a parent, husband, or wife) over-seeing the patient is twofold. It gives the doctor a second source of information, sometimes with a slightly different slant on the patient and his problem. This is particularly important when the patient is disturbed as he may give very distorted information and make it difficult for the doctor to get the true picture of the problem. Also, seeing a relative for the history, helps him to become involved in the patient's problem in a healthy way. This will be dealt with more in detail later. The patient may feel a relative will be biased or uncooperative. The social worker has a responsibility whenever securing a history to be constantly aware of these dangers and to be alert in evaluating carefully the informant's reliability, integrity and adequacy.

The history is usually taken in the home by the social worker. Although this sometimes is difficult, it proves the most satisfactory in most cases. With tact it is possible to get a degree of privacy, and if the relative is seen in the home he is usually more at ease as the surroundings are comfortable and familiar. If he has difficulty in expressing himself this familiarity can assist him in being more vocal. In securing histories from parents, the worker frequently has a first-hand view of the parent in action; and as everyone knows—actions speak louder than words. While the parent may be telling you how he handles the child in one way you sometimes see what he really does. This, too, helps the parent, himself, to recognize what he likes to think he does and then how he actually carries his plan out.

Looking now at the value of the social history from the eyes of the relative we find many facets to examine. If he is the parent of a child he is responsible for deciding if the child should come to the Clinic. Even after it has been suggested that the child come to the Clinic we find the parent has many questions about its advisability. This is coupled with anxiety and guilt. In securing the background information the parent tells of his own relationship to the child; getting a chance to stop and think about this relationship. In so doing he clarifies for himself his part in accepting or rejecting the referral. He also usually recognizes that as the child has developed he, unwittingly, has helped precipitate some of the present problems and often he will suggest that he needs the help more than the child. He is assured by the worker that most parents that come to the Clinic need some help in understanding their child; and that it is part of the approach of the Clinic team to have the parents of a child in therapy see the social worker for guidance. When dealing with parents it is most important to respect their parental responsibility and their right to decide what they want for their child and themselves.

It is not surprising to find in some few cases that as a parent gives the history he sees his own role in the child's life and some of the pitfalls he has stumbled into which have added to his child's problems. Perhaps he has been over-solicitous, too strict or maybe has tried to force the child into something he himself wanted as a child. For instance, we have had a mother who has personally led her child to school for three years while other children went happily off to school with all the neighbors children. This over-cautious mother not only ties her child closely to herself but runs the risk of the other school children teasing him unmercifully. This is only one way in which this parent has been over-solicitous. Probably she has been just as protective in every other contact with the child. Another parent may feel that because their family is all musically inclined and because they can give their child the opportunity of taking piano lessons the child should want them. It may be that the child has no talent and then no interest. Under parental insistance at his practicing many emotional problems may be developed which can be eliminated if the parent can be helped to state clearly the situation. Thus, even in giving information for a social history the parent often sees some of his mistakes and the conflicts he has developed unwittingly in his child. Seeing these sometimes makes the parent feel guilty and fearful of coming to the Clinic. He must be assured by the social worker that we recognize his attempts were made in an effort to be a very good parent and to offer rich opportunities.

Many another parent has fallen into the same difficulty. He may see the poor effect he has had on his child and also can see some way to better the life of the child; he may wish to put his new ideas into practice for a month or so and see what the results will be. If he is sincere and the child's problem is not too severe, he is encouraged to try his own ideas making sure he knows he can call the Clinic later to proceed with the examination if his plan fails. In giving him this respect as a parent he is left the responsibility of choosing what he wants to do. If his plan does fail, he is more likely to return and participate actively in the Clinic program, because he has tried all the ways he knows, short of the Clinic approach. If the worker feels that the child's problem is too critical to risk another month or so in exploration or if the parent's new ideas do not appear ones he can carry out, then the worker may encourage him to bring the child in for diagnosis and evaluation. He will have the doctor's advice and can decide at that point whether or not he wishes to accept therapy for his child if this is recommended. This interview around a history does eliminate the need for bringing a few children into the Clinic, but more often tells the parent what he can expect from the therapeutic process as well as his part in the treatment.

If the patient may need institutionalization particularly in the case of a feeble-minded child the parent may fear or resist even thinking of such a possibility—but if the worker is understanding, the parent usually will admit this fear and resistence, at the same time asking for the worker's opinion. He is aided in accepting his fear and guilt feelings as well as in understanding why he has them. His anxiety is decreased and his mind is freed to work out some plan for his child. The worker cannot diagnose, but she can discuss with the parent what the institution has to offer the child and what institutionalization may mean, both for the child and the rest of the family. By so doing the worker paves the way for the doctor who may have to tell the parent that his child is eligible for an institution and will benefit by its program. The interview with the worker should make the parent much more receptive to such a plan and ready to act on it.

If the relative is a husband or wife some of the above thinking applies as no doubt the relationship of these two lives plays a vital role in the patient's illness. Maybe one partner has encouraged treatment, then, as the time approaches, becomes anxious or guilt ridden. Here, the worker can help him to recognize that he did not force his partner to go to the Clinic. It is still the patient's choice (this is also applicable to any adult encouraging another to secure treatment) the partner must recognize that although he sees clearly the need for help he cannot make the other adult accept it; and that his responsibility for getting the patient to go to the Clinic only needs to go as far as presenting the possibility of the Clinic service. This does not apply if the person is so disturbed that he is irrational and needs protection from himself; then the responsible relative has an obligation to see that he gets the necessary treatment which would probably be hospitalization rather than Clinic service. By helping the relative to see his role more clearly, some of his own anxieties and guilt are decreased to the point that he can see the extent to which he must shoulder this burden and to what extent he has to leave it up to the patient.

In securing histories it is sometimes necessary to contact schools, courts, ministers, doctors or social agencies to obtain additional information. This can help the relative as well as the patient for the relative secures a feeling of sharing in a well planned effort by many and not being alone in it. If he regrets the detailed information he has given in the history, he may feel relieved to know that he is not the only source of information. Any information is, of course, kept confidential and not shared with the patient directly. It is used by the doctors to help understand the patient. It may also serve as leads to the doctor in guiding the patient to talk over problems which otherwise might be too painful for him to bring up yet are most pertinent to his illness.

By securing a history from a relative a bridge is established for this relative with the clinic team. Oftentimes the relative needs continuing support and guidance as well as interpretation of the patient's illness and understanding of his needs. If the relative has been made to feel less anxious and fearful in this first contact, he will be more willing to benefit by further contacts with the Clinic and will thus obtain a better understanding of himself in the situation.

Thus we find in securing a social history that the factual information is only a necessary part of a larger process for the relative who has thus become part of a clinic team, with the social worker concerned with the patient and his problem. This relationship offers reassurance, guidance, understanding and strength to him for his own association with the patient as the treatment continues.

THE PLACE OF A PSYCHIATRIC CLINIC IN THE PUBLIC SCHOOLS

Janet Enquist, A. B., M. S.,*
Wilmington, Del.

June, 1953 saw the completion of the fourth year of operation for the psychiatric clinic which is attached to the Wilmington public schools. It is not known just how unique such a set-up is. Certainly there are not many such clinics throughout the country. Such a "school clinic" is unusual enough to bear careful scrutiny at this time in order that we might evaluate just what are its advantages and in what ways it is able to serve parent, child and teacher.

In order to understand the development of this psychiatric clinic one must first understand the function and scope of the Department of Child Development and Guidance of the Wilmington public schools. This Department is responsible for services pertaining to the physical and emotional well-being of all children attending Wilmington public schools, as well as services to the physically handicapped, educationally and mentally retarded children. The Department staff includes physicians, nurses, dentists, a dental hygienist, speech correctionists, lip-reading instructor, teacher of the deaf, psychologists, social worker and a vocational guidance counselor. The Department has the responsibility for the program of teaching the mentally deficient and retarded, and for some of the guidance services offered in each of the secondary schools.

Of such varied and all-inclusive services, concern for the emotional health of the child is only one small segment. However, it is undisputedly an important one. In school a child's emotional maladjustment is perhaps more easily and earlier detected than in any other place. The teacher is in a unique position to detect early the small or large signs which indicate that all is not well in the child's emotional life. Many a child's difficulties can be handled in the classroom. The teacher can see growth and development even as she works with the child, understands him, and helps to meet his needs. Other children, with more serious disturbances need more intensified help of a different nature from that which can be offered in a classroom. In many cases psychiatric help for such children is indicated.

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In past years the schools have had two resources to which children could be referred for psychiatric treatment—the Mental Hygiene Clinic of the State Hospital for diagnosis and treatment on an outpatient basis, and Governor Bacon Health Center for those children in need of residential treatment. The difficulties of making referrals to the Mental Hygiene Clinic at Farnhurst were many. A problem at school often indicates that there is a problem at home, and many parents were willing for, and desirous of, some help with their children. However, it would be difficult for them, physically and emotionally, to get out to the mental hygiene clinic for such help. Many such referrals never materialized because of this.

Thus it was that four years ago the plan of a school-connected psychiatric clinic was discussed and felt to be desirable for several reasons. Many of the social and emotional problems of children are "discovered" in the classroom, and it is at the school's suggestion that the parents are able to admit their need for help. Thus it seemed desirable and logical that the school should be able to offer a psychiatric service to parents as one of the many services offered to help insure the physical and emotional well-being of the school child. It was felt, and has proved to be true, that the parent could more easily accept needed psychiatric help for himself and his child if this were offered as a school service and could be obtained at an easily accessible location in Wilmington.

The second advantage of a school psychiatric clinic appeared to lie in the service it could offer to the school personnel, particularly to the teachers, since they, like the parents, are in day-to-day contact with the child, and often are at a loss as to the best way to deal with him and his behavior. Hopefully, close contact could be maintained between the clinic and the school for the purpose of helping the teacher to increase her understanding of the child and to provide for him the best possible milieu for his healthy development.

With these goals in mind the Department approached Dr. M. A. Tarumianz, Superintendent of the Delaware State Hospital at Farnhurst. With his typical foresight and willingness to try the new, Dr. Tarumianz agreed to provide the services of two psychiatrists one-half day per week for the operation of a psychiatric clinic in the Wilmington public schools. This clinic was to be housed in the offices of the Department of Child Development and Guidance, where it continues to operate as one of the services of the Department. On May 11, 1949 the project was launched. Thirteen children were seen before the close of school in June.

The following year a psychiatric social worker was added to the team, also giving a half-day per week. This year, the clinic's fourth year of operation, the services were augmented further. One of the psychiatrists has given one full day each week to the clinic, the other a half-day each week, and the social worker has been available for one-half day or more, as she was needed. An average of fifteen children and about five parents were seen weekly. Sixty-nine children were suggested for referral to the clinic this year and fifty-seven of these materialized and the children were seen.

Because the clinic is a school-connected service, it operates primarily to help with school-connected problems, or in those cases where the child's problem manifests itself in the classroom situation. Occasionally exceptions are made and a child is seen when the parents ask for help and there is no problem in school. Since, of necessity, intake is limited, school problems take precedence over these others, however.

The clinic operates in this fashion: The teacher sees a problem in the classroom. This may be an overly aggressive youngster, or one who is too shy and withdrawn to participate in classroom activities, or a child who does not seem to be achieving up to his ability. If the teacher desires help in understanding and dealing with this child, she will refer to the Department of Child Development and Guidance for a psychological examination of the child. The parents' consent is not necessary for such a referral. The child is then seen by one of five school psychologists. As a result of this examination and observation of the child, the psychologist may recommend psychiatric evaluation and/or treatment. In conference with principal, teacher, and/or school social worker, plans are made for a parent contact. The parent, or parents, is then seen, sometimes by the social worker, sometimes by the psychologist, to determine whether or not the family is concerned about the child and desires the help offered by the school clinic. If the parent indicates a desire for help, the child is referred to the clinic through the school social worker, who schedules the appointment at the earliest available time.

The clinic then operates like a regular clinic. The child is seen by the psychiatrist in weekly interviews, first for diagnosis and then he may continue in treatment. The parents, when possible and desirable, are seen by the psychiatric social worker. That which is distinct in the school clinic, however, is the close contact that is maintained with the school during the time the child is being seen at the clinic. It is hoped that such contact will serve two purposes—the teacher will be helped with the problem she may have in dealing with the child in the classroom, and the child may be helped by thus having his classroom experience geared as nearly as possible to meet his needs. It is hoped that through the concerted efforts of the teacher and the pschiatrist, the child may have an optimum school environment, within the framework of which the psychiatrist can carry out his treatment of the child more effectively.

In summary, we have found the advantages of the school psychiatric clinic to be these: (1) The parents are able to accept referral to this clinic more easily than to an outside agency. They accept the clinic as another school service, and as such, it has less of the unpleasant and threatening connotations that sometimes are attached to other psychiatric services. (2) The clinic serves the teachers and other school personnel in helping them to deal with those children whom they find to be a problem in the classroom. Sometimes the clinic study can shed a new light on a child for a teacher who, previously, has been unable to understand the child's behavior, or to hit upon the best method of coping with it in the classroom. (3) The close school contact enables the psychiatrist to keep in close touch with that environment in which the child spends almost half his waking hours, to make recommendations, and perhaps to effect desirable changes here that may have a lasting effect on a child's adjustment.

The school clinic is still in its developmental stages. There are many gaps in the actual workings of the plan as it is here presented. There has been steady growth, however, over the past four years. Hopefully, this will continue, so that the clinic can fulfill its potentialities in helping the school and the child—that the child, through the school, may be recognized and helped toward the optimum growth and development that can be expected of him.

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Maryland Academy Of General Practice

More than 400 physicians from Maryland, District of Columbia, Virginia, Delaware and Pennsylvania are expected to attend the instructive day-long program of post-graduate lectures arranged by the program committee, Dr. Harold B. Plummer, chairman, and Dr. Walter A. Anderson, co-chairman, of the Maryland Academy of General Practice, to be held at Lord Baltimore Hotel, October 21, 1953, Baltimore, Md.

Six outstanding clinicians and teachers will address the Academy—coming from Boston, New York City, Philadelphia, District of Columbia—on problems in medicine, surgery, obstetrics, and endocrinology. They will present timely and practical information on "Late Complications of Diabetes", "Management of Cardiac Failure", "Indication for Pulmonary Resection", "Management of Osteoporosis", "X-ray Diagnosis of Pregnancy", and "The Newer Treatment of Asthma".

All practicing physicians, hospital residents and internes of Delaware are cordially invited to be present.

BOOK REVIEWS

The Physical Examination of the Surgical Patient. By J. Englebert Dunphy, M. D., Associate Clinical Professor of Surgery, Harvard Medical School; and Thomas W. Botsford, M. D., Clinical Associate in Surgery, Harvard Medical School. Pp. 326, with 188 figures. Cloth. Price, $7.50. Philadelphia: W. B. Saunders Company, 1953.

It was a pleasure to look through this new book. The authors have in mind the old philosophy, expressed a generation ago by William Mayo, that a physician who lets the laboratory make the diagnosis is a poor physician. This book is predicated upon the use of the five senses, together with common sense deductions. The book is divided into two main parts: the Elective Examination, and the Emergency Examination, which applies specifically to the examination of injuries. It is not a text book of surgery, nor is it a short cut to surgical diagnosis. However, all the common diseases and some of the rare ones are included in the discussions. Stress is laid on the technique of examination of the various parts. The text is extremely meaty and full of little points that are not often found in a book of barely 300 pages. The style is most readable, almost terse. In fact, the absence of verbosity is one of its chief recommendations.

This book is heartily recommended.

An Atlas of Surgical Exposures of the Extremities. By Sam W. Banks, M. D., Associate Professor of Orthopedic Surgery, Northwestern University; and Harold Laufman, M. D., Associate Professor of Surgery and Director of Experimental Surgery, Northwestern University. Pp. 391, with 552 illustrations. Cloth. Price, $15.00. Philadelphia. W. B. Saunders Company, 1953.

The preface to this brand-new opus states its purpose and its design as follows: "The need for a comprehensive atlas of surgical incisions of the extremities has existed for many years. The available textbooks on the various surgical specialties, including those on orthopedics, devote much space to pathology, treatment and other aspects of lesions of the extremities, but give little attention to the details of surgical exposure, which is, in many instances, the major task of the operation."

The book deals with the following regions: Shoulder girdle; shoulder joint; shaft of the humorus; elbow joint; radius and ulna; wrist joint and hand; hip joint; femur; knee joint; tibula; ankle joint and foot.

No illustration has been borrowed or adapted from other textbooks, but no claim is made by the authors of having originated any incision described in this atlas. Furthermore, epyonyms are purposely avoided, which, scientifically, is the best way, but we feel that occasionally the use of a person's name, such as "McBurney incision," is not only permissible but desirable.

The illustrations are excellent, and are well labelled, but in addition the facing page gives ample text to carry on the procedure pictured.

The index is complete. The only drawback to a book of this kind is its size, approximately 8 by 11 inches, which makes it an awkward fitting book in the library. But are not all atlases large books, to be kept in the library lying flat?

This book will fill a much felt need for the tyro in surgery, and even for the man who is well past the tyro stage.

MEDICAL SOCIETY OF DELAWARE
Hotel DuPont
WILMINGTON, DELAWARE

MONDAY, OCT. 12, 1953

8:30 p.m.—House of Delegates

TUESDAY, OCT. 13, 1953

9:30 a.m.—Invocation: Rev. John G. MacKinnon, Wilmington.

9:40 a.m.—Address of Welcome: Hon. August F. Walz, Wilmington.

9:50 a.m.—Report on House of Delegates: A. M. Gehret, Wilmington.

10:00 a.m.—Incidence of Common Bile Duct Disease Following Surgical Exploration: Daniel J. Preston, Wilmington and John W. Alden, Jr., Wilmington.

10:30 a.m.—
R. Douglas Sanders, Wilmington.

11:00 a.m.—Exhibits.

11:30 a.m.—Report on Cancer Detection to the Physicians of Delaware: Harold S. Rafal, Wilmington.

12:30 a.m.—Luncheon: Members and Guests. Medical Society of Delaware.

2:00 p.m.—Frozen Shoulder: Anthony F. De Palma, Philadelphia.

2:40 p.m.—The Importance of Body Fluid and Electrolytes in Clinical Medicine: Richard A. Neubauer, Wilmington.

3:20 p.m.—Exhibits.

3:50 p.m.—The Abuse of the Barbiturates: Harold W. Lovell, New York.

4:30 p.m.—Legal Aspects of the Barbiturate Problem in Delaware: Hon. Thomas Herlihy, Jr., Wilmington.

6:45 p.m.—Reception and Dinner (Subscription).

9:00 p.m.—Address: Thomas H. Alphin, Washington.

WEDNESDAY, OCT. 14, 1953

9:30 a.m.—American Medical Education Foundation: C. L. Hudiburg, Wilmington.

9:40 a.m.—Diagnosis and Treatment of Spontaneous Subarachnoid Hemorrhage: Philip D. Gordy, Wilmington.

10:20 a.m.—Treatment of Cardiac Emergencies: William Likoff, Philadelphia.

11:00 a.m.—Exhibits.

11:30 a.m.—Presidential Address: To Which of These Shall We Direct Our Attention?: Victor D. Washburn, Wilmington.

12:10 a.m.—Election of President-elect for 1954. (New Castle County.)

12:30 p.m.—Luncheon: Members, Guests and Auxiliary, New Castle County Medical Society.

2:00 p.m.—Orthopedic Care of Poliomyelitis: William T. Green, Boston.

2:40 p.m.—Medical Care Program for the Indigent in Pennsylvania: C. L. Palmer, Harrisburg.

3:20 p.m.—Exhibits.

3:50 p.m.—Administration of a Medical Care Program by the Maryland State Department of Health: Mark V. Ziegler, Baltimore.

4:30 p.m.—Baltimore City Medical Program: J. Wilfrid Davis, Baltimore.

WOMAN'S AUXILIARY, M. S. of D.
TUESDAY, OCT. 13, 1953
Delaware Academy of Medicine

10:00 a.m.—Registration.

10:30 a.m.—Business Session. Guest Speaker: Mrs. Leo. J. Schaefer, President, Woman's Auxiliary to A. M. A.

1:00 p.m.—Luncheon: DuPont Country Club. Guest Speaker: Hon. J. Caleb Boggs.

6:45 p.m.—Reception and Dinner (Subscription) Hotel DuPont.

WEDNESDAY, OCT. 14, 1953
Delaware Academy of Medicine

10:30 a.m.—Business Session and Election. Inaugural Address: Mrs. Allen R. Cruchley, Middletown.

12:30 p.m.—Luncheon: Hotel DuPont, New Castle County Medical Society.

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AUTHORS	No. of Patients	Chronic, Resistant to Other Therapy	TYPES OF ULCERS				RELIEF OF SYMPTOMS (Chiefly Pain)				Surgery or Complications[1]	Side Effects Requiring Discontinuance of Drug[2]	EVIDENCE OF HEALING			
			Duodenal	Jejunal	Stomal	Gastric	Good	Fair	Poor	No Report			Complete	Moderate	None	No Report
Grimson, Lyons, Reeves	100	100	93	7			80	11	4		5		47		19	29
Friedman	15	15	14			1	5		4	6[3]			2			13
Bechgaard, Nielsen, Bang, Gruelund, Tobiassen	26	26	21			5	16	4	6				8	6	12	
McHardy, Browne, Edwards Marek, Ward	162		162				136	12	11		3	1	14	9	7	129
Segaf, Friedman, Watson	34	34	34[4]				14	13			7	2	5		8	14
Brown, Collins	117	99	117				97	7	8		5	8	55	9	8	40
Asher	77		65		7	5	52	9	16			16		9	21	47
Rodriguez de la Vega, Reyes Diaz	5	4	5				4		1					3	2	
Winkelstein	116	116	102	8		6	102		14				53		18	45
Hall, Hornisher, Weeks	18	18	18				11		1	6[5]			18			
Maier, Meili	38	38	24			14[6]	27	7	4[7]				10	2	5	21
Meyer, Jarman	25	18	25				21		4							25
Poth, Fromm	37	37	37				33	3	1				33	3	1	
Plummer, Burke, Williams	41	41	41				36		5				38		3	
McDonough, O'Neil	104	100	104				63	10	31			11	4		11	89
Broders	60	60	58		1	1	35	19	6				10	1	49[8]	
Legerton, Texter, Ruffin	11		11				11									11
Holoubek, Holoubek, Langford	76	69	76				35	27	10		4	10	26		10	36
Ogborn	42		39	2		1	42[9]									42
Shaiken	48	48	48				33	10	3		2		33	10	3	
Johnston	145	145	145				143		2			2	143		2	
Rossett, Knox, Stephenson	146		141			5	146					4[10]	53			93
TOTALS	*1443*	*968*	*1380*	*17*	*8*	*38*	*1142*	*132*	*131*	*12*	*26*	*54*	*552*	*52*	*179*	*634*
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1. Not included in tabulations.
2. Included in "Relief of Symptoms" as "Poor" and in "Evidence of Healing" as "None."
3. Four had no symptoms when Banthine therapy was begun.
4. Of which seven were penetrative lesions and five partially obstructive.
5. No symptoms were present in four.
6. Two with symptoms only; no demonstrable ulcer.
7. Three were psychopathic patients and one had a ventricular ulcer of the lesser curvature.
8. Roentgen findings after treatment period of two weeks; forty-seven had duodenal deformity.
9. All returned to work within a week.
10. In these four, after relief of symptoms, Banthine was discontinued because of urinary retention.

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During treatment, 26 patients required surgery or developed complications other than ulcer which required discontinuance of the drug before results could be evaluated.

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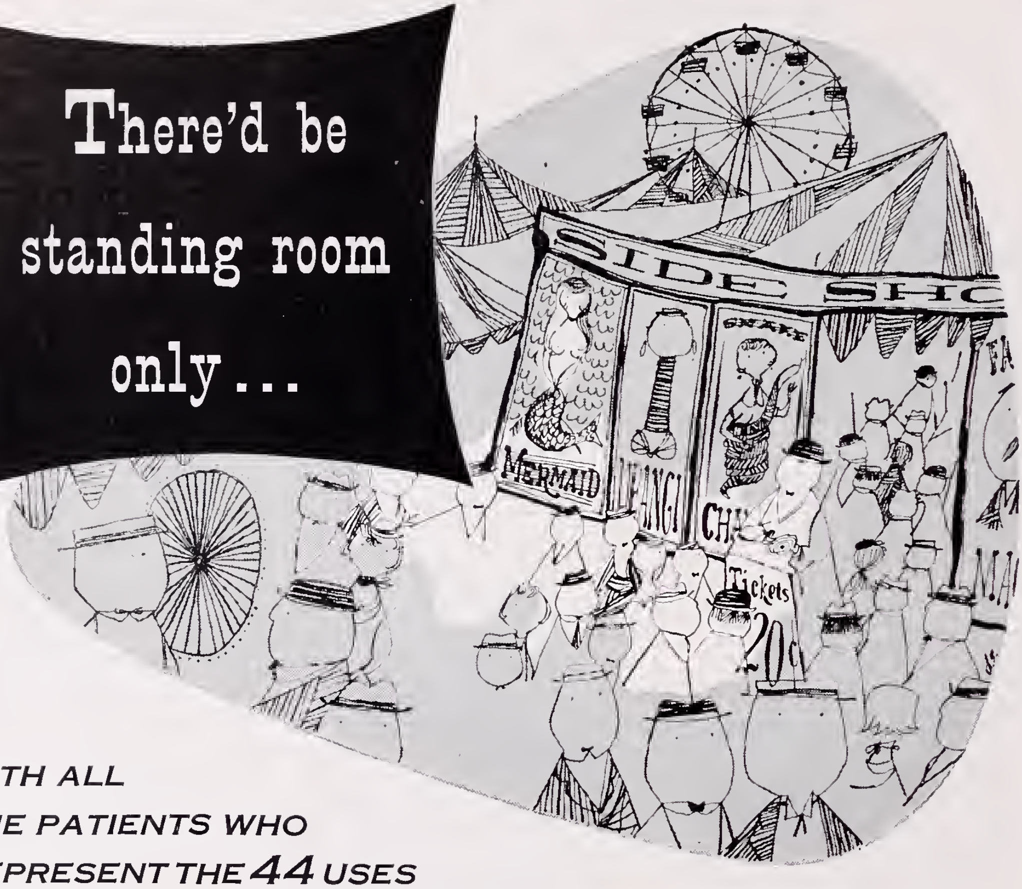

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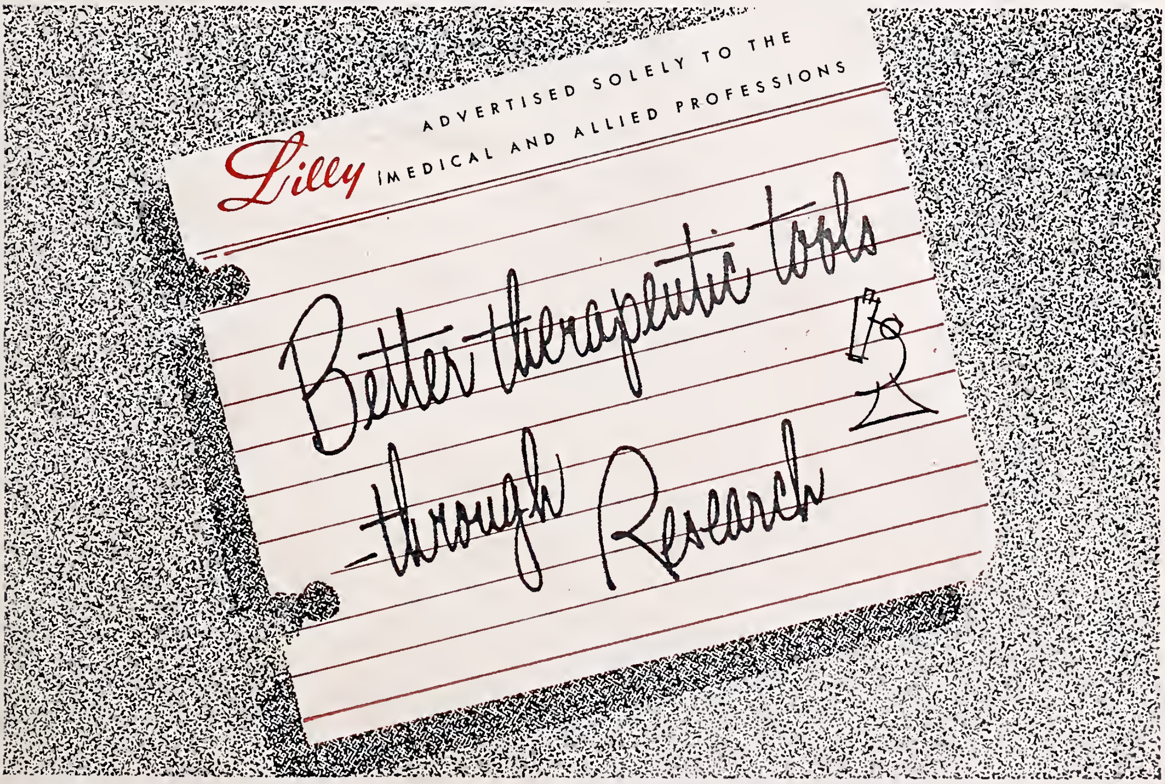

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8:00 A.M.	Amphitheatre	Cholecystectomy
8:00 A.M.	Room B	Thyroidectomy
8:15 A.M.	Room C	Radical Mastectomy
8:45 A.M.	Room 12	Submucous Resection
9:30 A.M.	Amphitheatre	Resection of Bowel

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2. Trafton, H. M., and Lind, H. E.: Ibid. *69*:315 (Feb.) 1953.
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1. Heller, E. M.: The Treatment of Essential Hypertension. Canad. Med. Assn. Jour., 61:293, Sept., 1949.

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Although caloric needs in the later decades of life lessen with decreasing physical activity and diminishing metabolic rate, clinical observations[1] corroborated by experimental studies[2] show that protein needs of the aging organism continue at the levels of adequacy in earlier years.[3] For avoidance of protein deficiencies, which the aged are prone to develop,[4] the protein quota of the diet of persons over fifty should be more liberal than is often the practice.[5] In providing this quota, lean meat may well be one of the protein foods of the daily diet.

In the years beyond fifty, as well as before, continuous adequate protein nutrition remains an absolute necessity for maintenance of a normal concentration of plasma proteins and, in turn, a normal osmotic pressure of the plasma.[6] Even more pronounced in the aged than in younger persons are the ill consequences of hypoproteinemia—edema, decreased resistance to generalized infection, retarded bone healing, and poor wound healing.[7] Furthermore, dietary protein is essential for the continuous chemical regeneration of cell protein in the prevention of abnormal tissue wasting, one of the most characteristic and obvious changes in the geriatric patient.[8]

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Literature on Request

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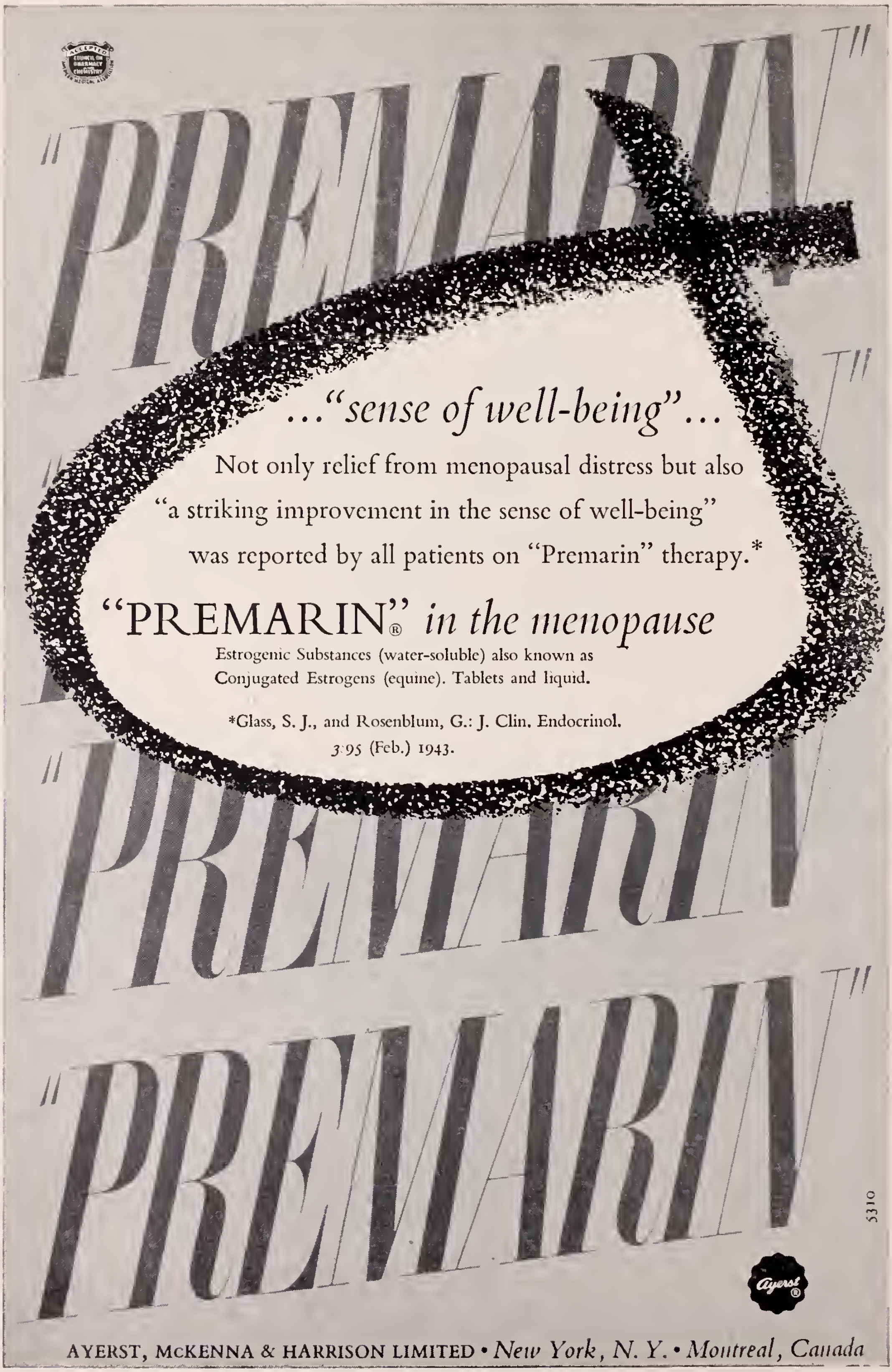

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*Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943.

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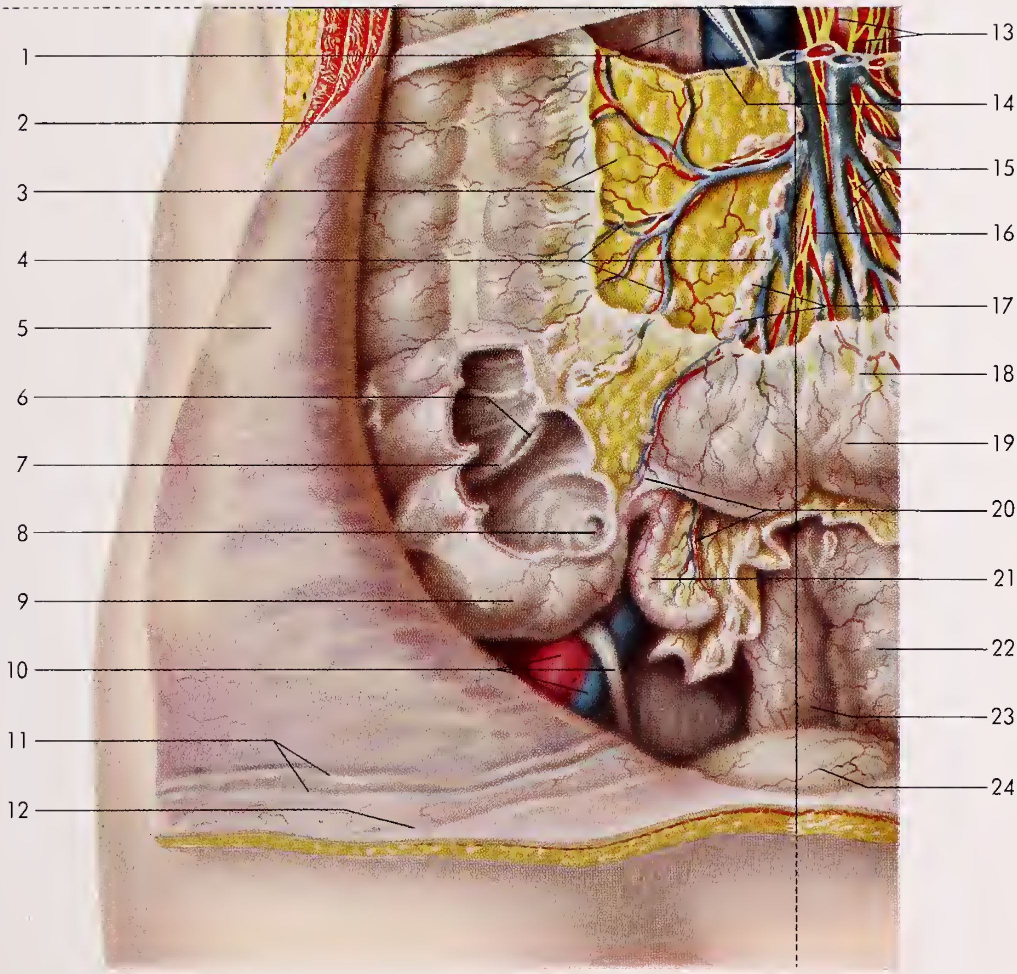
Lower Right Quadrant of the Abdomen



1 Spermatic artery and vein

2 Ascending colon

3 Mesocolon

4 Branches of ileocolic artery and vein

5 Parietal peritoneum

6 Ileocecal valve

7 Frenum

8 Appendicocecal valve

9 Cecum

10 Ureter and external iliac artery and vein

11 Epigastric artery and vein

12 Lateral umbilical ligament

13 Aorta and abdominal aortic plexus

14 Vena cava

15 Intestinal arteries and veins

16 Sympathetic abdominal plexus

17 Ileocecal lymph nodes

18 Mesentery

19 Ileum

20 Ileocecal fold and appendicular artery and vein

21 Vermiform appendix

22 Sigmoid colon

23 Rectum

24 Urinary bladder

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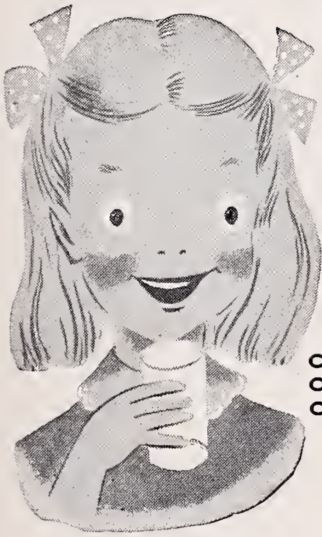

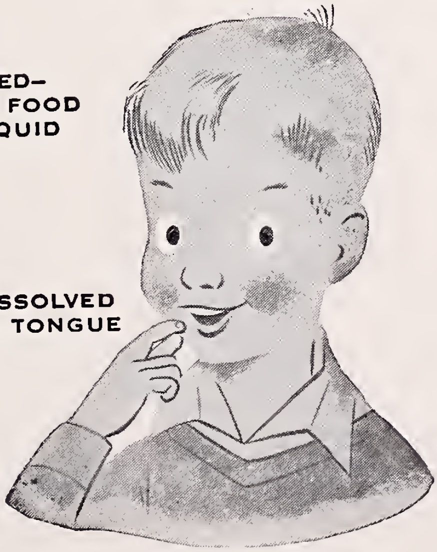

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MEDICAL SOCIETY OF DELAWARE
Hotel DuPont
WILMINGTON, DELAWARE

MONDAY, OCT. 12, 1953

8:30 p.m.—House of Delegates

TUESDAY, OCT. 13, 1953

9:30 a.m.—Invocation: Rev. John G. MacKinnon, Wilmington.

9:40 a.m.—Address of Welcome: Hon. August F. Walz, Wilmington.

9:50 a.m.—Report on House of Delegates: A. M. Gehret, Wilmington.

10:00 a.m.—Incidence of Common Bile Duct Disease Following Surgical Exploration: Daniel J. Preston, Wilmington and John W. Alden, Jr., Wilmington.

10:30 a.m.—Anesthesia Services in Delaware. R. Douglas Sanders, Wilmington.

11:00 a.m.—Exhibits.

11:30 a.m.—Report on Cancer Detection to the Physicians of Delaware: Harold S. Rafal, Wilmington.

12:30 a.m.—Luncheon: Members and Guests. Medical Society of Delaware.

2:00 p.m.—Frozen Shoulder: Anthony F. De Palma, Philadelphia.

2:40 p.m.—The Importance of Body Fluid and Electrolytes in Clinical Medicine: Richard A. Neubauer, Wilmington.

3:20 p.m.—Exhibits.

3:50 p.m.—The Abuse of the Barbiturates: Harold W. Lovell, New York.

4:30 p.m.—Legal Aspects of the Barbiturate Problem in Delaware: Hon. Thomas Herlihy, Jr., Wilmington.

6:45 p.m.—Reception and Dinner (Subscription).

9:00 p.m.—Address: Thomas H. Alphin, Washington.

WEDNESDAY, OCT. 14, 1953

9:30 a.m.—American Medical Education Foundation: C. L. Hudiburg, Wilmington.

9:40 a.m.—Diagnosis and Treatment of Spontaneous Subarachnoid Hemorrhage: Philip D. Gordy, Wilmington.

10:20 a.m.—Treatment of Cardiac Emergencies: William Likoff, Philadelphia.

11:00 a.m.—Exhibits.

11:30 a.m.—Presidential Address: To Which of These Shall We Direct Our Attention?: Victor D. Washburn, Wilmington.

12:10 a.m.—Election of President-elect for 1954. (New Castle County.)

12:30 p.m.—Luncheon: Members, Guests and Auxiliary, New Castle County Medical Society.

2:00 p.m.—Orthopedic Care of Poliomyelitis: William T. Green, Boston.

2:40 p.m.—Medical Care Program for the Indigent in Pennsylvania: C. L. Palmer, Harrisburg.

3:20 p.m.—Exhibits.

3:50 p.m.—Administration of a Medical Care Program by the Maryland State Department of Health: Mark V. Ziegler, Baltimore.

4:30 p.m.—Baltimore City Medical Program: J. Wilfrid Davis, Baltimore.

WOMAN'S AUXILIARY, M. S. of D.
TUESDAY, OCT. 13, 1953
Delaware Academy of Medicine

10:00 a.m.—Registration.

10:30 a.m.—Business Session. Guest Speaker: Mrs. Leo. J. Schaefer, President, Woman's Auxiliary to A. M. A.

1:00 p.m.—Luncheon: DuPont Country Club. Guest Speaker: Hon. J. Caleb Boggs.

6:45 p.m.—Reception and Dinner (Subscription) Hotel DuPont.

WEDNESDAY, OCT. 14, 1953
Delaware Academy of Medicine

10:30 a.m.—Business Session and Election. Inaugural Address: Mrs. Allen R. Cruchley, Middletown.

12:30 p.m.—Luncheon: Hotel DuPont, New Castle County Medical Society.

VICTOR D. WASHBURN, M. D.
PRESIDENT of the MEDICAL SOCIETY of DELAWARE
1953

DELAWARE STATE MEDICAL JOURNAL

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Per Copy $ .50

A REVIEW OF THE CANCER CONTROL PROGRAM IN DELAWARE

George F. Campana, M.D., M.P.H.,*
Dover, Del.

In January 1947 the State Board of Health approved a bill (which was to be presented to the General Assembly) for the purpose of appropriating monies for the Cancer Control Program in Delaware.

In February 1947 the Cancer Committee of the Medical Society of Delaware seconded the foregoing approval and made the following recommendations:

1. The establishment of a central registry directed toward accurate recording of cancer morbidity and mortality and statistical research.
2. The assistance in the establishment of diagnostic and investigative clinics where needed.
3. To consider the support of existing facilities for the treatment of malignant disease or the establishment of additional facilities.

On April 9, 1947 Governor Bacon approved Senate Bill No. 164. This act appropriated $25,000 annually for the fiscal years beginning July 1, 1947 and July 1, 1948 to be used for the detection of cancer for research and other purposes related to cancer prevention and control.

On May 25, 1947 the Division of Cancer Control was established by the State Board of Health. An advisory committee was appointed at its first meeting July 10, 1947. It made the following recommendations:

1. That the program of the American Cancer Society be correlated with that of the State Board of Health.
2. That morbidity record collection is a proper activity of the State Board of Health and that a survey be undertaken by the State Board of Health.
3. That uniform blanks should be prepared for the medical examinations relative to cancer.

The aforementioned objectives were attained early in the second year of the cancer program.

In October, 1949 the cancer division office which had formerly been located in Marshallton was moved to its present quarters at Governors Avenue and Division Street, Dover. At this time effort was made to give greater service to the medical practitioner realizing that the successful treatment of cancer rests upon: (1) Early case finding (perhaps in the precancerous stage); (2) Accurate diagnosis; (3) Prompt treatment.

The program was expanded along the following lines: (1) The Mobile Cancer Detection Unit was added; (2) Provision was made for the pathological examination of biopsy specimens for physicians; (3) The medical profession and lay public was provided with up-to-date information regarding cancer.

The Mobile Cancer Detection Unit was secured late in 1950. At that time service on this unit was offered to any woman over 35 years of age. It was presumed that these were healthy examinees. Early in the program emphasis was placed upon the five point examination: (1) skin, (2) buccal cavity, (3) breasts, (4) pelvis, (5) rectum.

Cervical smears according to the Papanicolaou technique were collected and examined. Repeat smears were done when indicated. Provision for pathological examination of biopsy specimens for indigent patients was made in collaboration with the pathologists in the state.

Education of the lay public was accomplished by the procurement of a film entitled "Self-Examination of the Breast"; by distribution of cancer pamphlets, news-releases, radio talks, etc. Information for physicians and other professional groups was also provided.

---

*Director Divisions of Preventable Diseases and Cancer Control, Delaware State Board of Health.

On July 1, 1951 the Director resigned to assume new duties as Health Officer of the Sussex County Health Unit in Georgetown. The writer was then assigned to the Cancer Division as Director. The objectives of the program continued to provide full measure of service to both the public and the medical profession. The scope of the physical examination was broadened. The guiac test for occult blood in the stool was added. A careful check of each case is made by history and examination. An x-ray of the chest is made when indicated. In our Tb. program all x-ray films are examined for tumors, heart conditions, etc. And now with our state-wide rapid x-ray program, which will start September 9, 1953, it is expected that any symptomless cancer of lung, bone, etc. will be picked up and reported to the Cancer Control Division. A thorough physical examination is our goal. The work is done either by practicing physicians in the communities, by the county health officer or the director of the division. Private physicians are encouraged to handle this work as much as possible. It is felt that cancer detection is the prerogative of the private practitioner and it is hoped that every doctor's office will soon be a Cancer Detection Center.

Early in 1953 the age for the cancer detection examinees was changed to include any female 25 years of age and over. This was done because:

1. There is sufficient evidence indicating that pre-preinvasive cancer or carcinoma in situ of the cervix uteri may have a long latent period (estimated by some at 10 years) and that this lesion may be found in relatively young women. If this present concept of carcinoma "in situ" is accepted, then its occurrence in the twenties would not be unusual. The average age of patients with this type of lesion has been found to be ten years younger than that of invasive cervical cancer.

2. Cancer of the breast may also appear early in women; any time after twenty years of age. Hurdon's report from the statistics of mortality for England and Wales indicates that the number of single women who die of cancer of the breast is greater than the number of married women or widows.

3. Public opinion was most influential in effecting the age change. The younger women requested cancer detection examinations. It is believed that cancer education is to a great extent to be credited for the younger group wishing to be examined. It is interesting to note that over 50% of the cancer detection examinees in our program during the fiscal year 1952 were between 25 and 35 years of age.

4. Conformity with the policies of the Cancer Society of Delaware was desired. The society has established the ages of 25 and above for their examinees.

The scraping technique (of the squamocolumnar junction of cervix uteri, referred to as surface cell-biopsy) using the Ayre wooden spatula instead of the cotton tipped applicator is now followed. Use of the cotton tipped applicator is only infrequently indicated. Obtaining smears with the spatula, according to Ayre, permits diagnosis of cancer of the cervix at an earlier stage than any other known method. He recommends that the material thus obtained be transferred to the glass slide in one single circular motion.

Smears for the Papanicolaou's test have been examined for the medical profession by the State Board of Health since 1952. A kit, consisting of slides, Ayre spatulas, and slide holders suitable for mailing in envelopes, is available to physicians from the State Board of Health Laboratories in Dover or the County Health Officers. The fixing solution which consists of 50% alcohol and ether cannot be furnished for obvious reasons. Before putting slides (which have been in the fixing solution for at least one hour) into cardboard holders for mailing, it is suggested that a drop or two of glycerin be placed upon them and that they be covered with another slide. This will keep cells in a histologically good condition. The slides are firstly screened in our laboratory. Those that are at all questionable are forwarded to a pathologist, who makes the final decisions as to malignancy or non-malignancy. A patient card, completely filled in, should accompany the slides to Dover. Complete data on card assists pathologist in his final diagnosis.

It is gratifying to report that both the Papanicolaou smear examining and biopsy services have been used to a greater extent during the past fiscal year by private physicians. There were 519 smears and 23 biopsy specimens examined through the Division of Cancer Control.

The Mobile Cancer Detection Unit has operated successfully over the state. However, in order to further serve the people, nine permanent detection centers strategically located in Sussex, Kent, and New Castle Counties, have been established. Four of these are in association with the following hospitals: Beebe, Lewes; Kent General, Dover; Milford Hospital, Milford; and Nanticoke Hospital, Seaford. The remaining five are located at our health units in Middletown, Newark, Georgetown, Frankford and Laurel. On July 1, 1953 the Cancer Detection Center at Georgetown, formerly conducted by the Cancer Society, was turned over to the State Board of Health by mutual agreement. All Cancer Detection Centers in the three counties, with the exception of the city of Wilmington, are now under the jurisdiction of the Cancer Control Division of the State Board of Health.

TABLE 1
Cancer Incidence of the White Population by Age, Sex, and Site, Delaware 1952

SITE	SEX	ALL AGES	9	10 19	20 29	30 39	40 49	50 59	60 69	70 79	80 89	90 99	Age Unknown
All Sites	M	327		3	8	5	36	60	105	62	36	4	8
	F	339	4	3	10	34	67	63	79	55	16	2	6
Buccal Cavity and Pharynx	M	16					2	1	7	3	3		
	F	5					1		1	2	1		
Digestive System and Peritoneum	M	68				2	4	13	29	12	6	1	1
	F	48			1	1	8	8	14	13	3		
Respiratory System	M	38			1		4	10	16	6	1		
	F	6	1			1	2	2					
Uterus	F	76			5	12	20	14	16	8	1		
Other Genitalia	F	11		1	1	1	1	2	4	1			
Breast	F	83				11	24	15	14	14	2		3
Genital Organs	M	34			1	1		4	9	13	6		
Urinary System	M	17					2	5	5	3	2		
	F	11					1	5	3	2			
Skin	M	121			3	1	18	19	34	21	16	2	7
	F	62		1		2	6	11	17	12	8	2	3
All Other Sites	M	33		3	3	1	6	8	5	4	2	1	
	F	37	3	1	3	6	4	6	10	3	1		

In the spring of 1953 the Cancer Society began to provide volunteer service for our permanent detection centers. These volunteers assist at the centers in various ways. They act as hostesses, explain the services, and calm the examinees before examination. They take histories and prepare the patient for the examination. They assist both nurse and doctor as needed. This assistance on their part enables the Division of Cancer Control to release a clerk for use elsewhere.

A table of statistics on cancer based on reporting by practising physicians is presented, as in former years. It is to be found at the end of this paper. Statistics relative to the work done in the Cancer Detection Program will be discussed briefly. Since detection work began on the Cancer Mobile Unit in August 1950 until July 1, 1953 some 3,333 supposedly asymptomatic women were examined at our detection centers. This averages to a little better than 1,100 per year. This number does not include those who had to have repeated smears made. Among the 3,333 examined there were found 10 positive cervical cancers. This is a rate of approximately three per thousand. It compares very closely with similar statistics prepared by Strong Cancer Prevention Clinic, New York City. From 1937 to 1949

TABLE 2
Cancer Incidence by Site, Color and Region
Delaware 1952

SITE	SEX	Delaware White	Delaware Col.	Sussex White	Sussex Col.	Kent White	Kent Col.	New Castle excluding Wilmington White	New Castle excluding Wilmington Col.	Wilmington White	Wilmington Col.	% of all white cases
All Sites	M	327	28	63	1	49	6	72	5	143	16	100%
	F	339	33	67	8	20	7	87	6	165	12	100%
Buccal Cavity and Pharynx	M	16	1	3	0	4	1	4		5		4.9%
	F	5		1				1		3		1.5%
Digestive System & Peritoneum	M	68	15	5	1	12	2	16	3	35	9	20.8%
	F	48	4	3	1	2		16		27	3	14.2%
Respiratory System	M	38	3	2		7		9	1	20	2	11.6%
	F	6	1					1		5	1	1.8%
Uterus	F	76	14	23	4	10	4	18	3	25	3	22.4%
Other Genitalia	F	11	1	3			1	2		6		3.2%
Breast	F	83	8	19	2	3	1	16	1	45	4	24.5%
Genital Organs	M	34	3	17		5	2			12	1	10.4%
Urinary System	M	17	1	1				8	1	8		5.2%
	F	11	1	2			1	3		6		3.2%
Skin	M	121	2	30		20		25		46	2	37.0%
	F	62	2	13		2		20	1	27	1	18.3%
Other Sites	M	33	3	5		1	1	10		17	2	10.1%
	F	37	2	3	1	3		10	1	21		10.9%

TABLE 3
Cancer Incidence by Age, Sex, Color and Region
Delaware 1952

AGE AND SEX		Delaware White	Delaware Col.	Kent White	Kent Col.	Sussex White	Sussex Col.	New Castle excluding Wilmington White	New Castle excluding Wilmington Col.	Wilmington White	Wilmington Colored
ALL AGES	M	327	28	49	6	63	1	72	5	143	16
	F	339	33	20	7	67	8	87	6	165	12
-9	M										
	F	4						2		2	
10-19	M	3								3	
	F	3				1		1		1	
20-29	M	8	1	3		1		2		2	1
	F	10	1	3	1	1		2		4	
30-39	M	5	2		1	1		3		1	1
	F	34	9	1	1	12	4	13	2	8	2
40-49	M	36	5	5	1	8	1	14	2	9	1
	F	67	4	4	1	9		17	1	37	2
50-59	M	60	4	10		11		13	1	26	3
	F	63	5	6	1	10		16		31	4
60 69	M	105	9	9	2	21		24		51	7
	F	79	9	4	2	20	3	15	1	40	3
70-79	M	62	6	13	2	13		9	2	27	2
	F	55	3	1	1	13	1	15	1	26	
80-89	M	36	1	7		6		6		17	1
	F	16						6		10	
90-99	M	4				1		1		2	
	F	2	1						1	2	
AGE UNKNOWN	M	8		2		1				5	
	F	6	1	1		1				4	1

there were examined 6,627 women among whom were found 18 cancers of corpus and cervix uteri combined; the rate being 2.7 per thousand. In the same clinic there were examined a total of 19,499 women from 1940 to 1949. There were found 60 cancers of corpus and cervix uteri combined; the rate being 3.07 per 1,000. To date, our figures are not complete. There are a few instances in which we have been unsuccessful in our follow-ups. For the fiscal year ended we have seven outstanding potentially positive pathological grades IV and V cervical smears. We have not received reports from physicians as yet. It is probable that 50% of these smears are positive for cancer (delayed reports do not mean that physicians are at fault). It may also be stated that all our examinees are apparently well people with no complaints or symptoms, so-called asymptomatic, who usually make their own appointments for examination at our centers. In large institutions like the Strong Cancer Prevention Clinic in New York City many of the examinees are referred by physicians who probably already detected or suspected cancer. Taking these facts into consideration would make our statistics compare even more favorably with those elsewhere.

The number of so-called precancerous conditions found during the fiscal year 1952 to 1953 is difficult to determine. If we accept the definition of a precancerous condition as given by Strachan, "a pathological condition of the tissues which is likely to develop into cancer," then we may assume that 213 precancerous conditions were found in this period among 1,200 persons examined.

All examinees involved were referred to their family physicians. Many pathological conditions were found in the mouth which are the prime concern of the dentists; namely, tooth decay, pyorrhea, improperly fitting dentures, etc. These were referred to their family dentists. Also other conditions were found which were unrelated to cancer. Taking these into account we can state definitely and without hesitation that at least 50% of the examinees were found to need either medical and/or dental care. Similar studies by others show that 75% and more have needed medical and/or dental care.

Educational services are being carried on as usual. The Cancer Bulletin continues to be mailed to all physicians and dentists in the state. Additional films for professional groups have been purchased. A short refresher course in cancer for physicians has been discussed with the President of the Medical Society of Delaware. He was favorably impressed and will take the matter up with the Medical Society. The Director of the Cancer Division attended such a one week course early in 1953 at the Memorial Hospital in New York City. The lay public is constantly provided with information on cancer, pamphlet distribution, talks to regular and, also, radio audiences plus press releases and personal information by health department personnel, particularly by nurses and doctors. During the week of July 27, 1953 our Cancer Mobile Unit was stationed at the Harrington Fair. A nurse or doctor was in attendance giving out cancer information (both with literature and verbally) from 10 A.M. until 8 P.M. daily.

The new system of record keeping mentioned in the Cancer Report No. 5, September, 1951, Delaware State Medical Journal, is now completely set up. All the information from more than 6,000 old records has been punched on the new cards. Special cabinets for filing these cards have been furnished. Our register is growing to such an extent that already additional files have been found necessary. This new record keeping system greatly facilitates our studies in cancer statistics.

The cancer nursing service is conducted as a part of the generalized nursing program of the Division of Public Health Nursing. Approximately 2,000 nursing visits to cancer patients in the home have been made during the past fiscal year. The nurse is alert to early symptoms of cancer at all times and in all places. She teaches the importance and value of postpartum examinations. She encourages mothers to return to their physicians for a six weeks postpartum examination. She interprets the importance of periodic health examinations. She attends cancer committee meetings and keeps herself abreast of the times in cancer control. She teaches the family beside nursing and care of the cancer patient. She will follow-up cases at the physician's request. She is acquainted with cancer facilities available in her district and directs cases quickly to same. She knows how to assist with the social and/or economic problems of the family of the cancer patient. The nurse may be considered the first line of defense in our cancer control program.

The writer is convinced that the cancer control program in Delaware has just only begun. The statement in the Annual Report, 1952, of the American Cancer Society that "the Cancer Detection Centers have been highly successful in Delaware in stimulating both general and medical interest" is most encouraging. That the centers have proved their value is attested to by the following:

1. Detection of unknown cancer and precancerous conditions.

2. Detection of other conditions related or unrelated to cancer in skin, thyroid, ovaries, glands, heart, pelvis, genetalia, rectum and buccal cavity.

3. Advancement of the concept of the periodic medical and dental examination (examination by family physician every six months is suggested).

4. The training of public health physicians in these centers.

5. That requests for cancer detection examinations come not only from women but also from men. Our detection centers examination lists are always filled and in several instances there has been a long waiting list.

In conclusion the writer hopes that the services of the Cancer Control Program can be further extended. He is confident that every physician's office is or will be a cancer detection center. He knows that the dental profession is alerted to cancerous conditions of the buccal cavity. With the continued cooperation of physician, dentist, nurse and that of the Cancer Society and other Health organizations, there can be no question as to the successful outcome of the Cancer Control Program in Delaware.

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THE MORTALITY FROM RESPIRATORY CANCER, 1952

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The very encouraging results that we have recently experienced in the reduction of tuberculosis mortality is leading us into believing that we have within our possibilities the opportunity to reduce this disease to a nonentity. Further pursuing of our vigorous case finding, treatment, and medical supervision programs promises to be as fully rewarding as similar efforts during the past few years.

With the rapid decline of tuberculosis mortality there has been the concomitant rise in another morbid condition of the respiratory system to which more and more attention has been diverted during the past few years. The rising toll from respiratory cancer and the importance of the disease in relation to tuberculosis is brought out in the accompanying table. "Comparative Mortality Rates From All Forms of Tuberculosis and Respiratory Cancer." During the past ten years, the mortality in Delaware from respiratory cancer has increased 150%, while in one-half that length of time tuberculosis mortality has declined 50%. The fatality trends from each disease is strikingly brought out in the chart which shows the trend of the mortality from each cause and how in 1952 their curves of trend intercepted. Last year, there were 65 deaths from cancer of the respiratory system, while during the same year there were 55 deaths from all forms of tuberculosis, which number is 50% less than we had for 1949, only four years ago.

From what we know at the present time, it is difficult to account for the recorded increase in the mortality or morbidity from respiratory cancer. We do not know how much of the rise is real. During the period since 1940, the mortality rate from respir-

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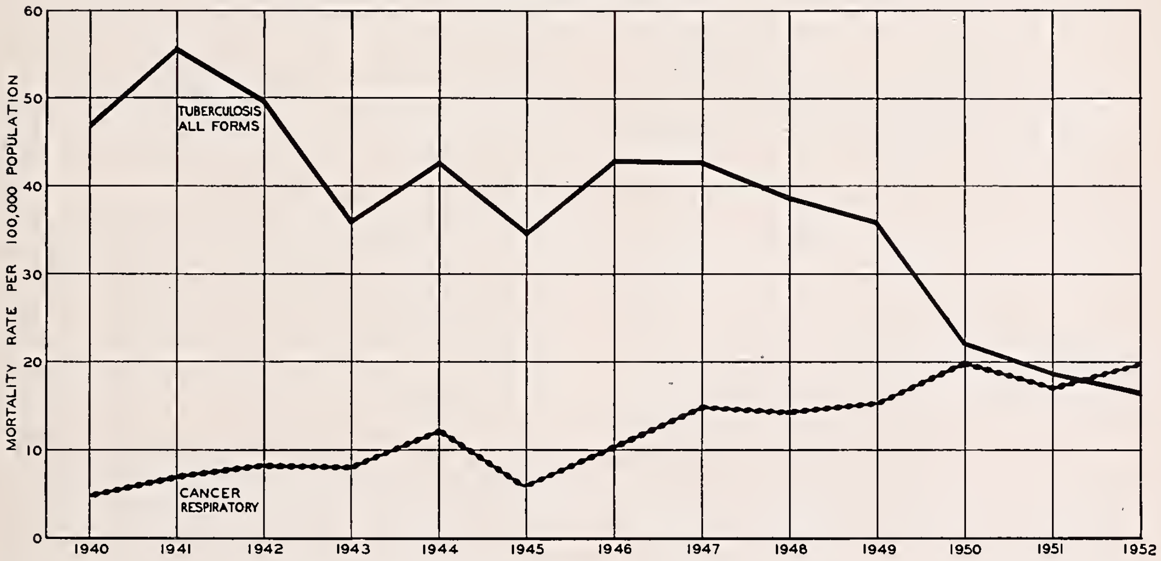
COMPARATIVE MORTALITY RATES FROM ALL FORMS OF TUBERCULOSIS AND RESPIRATORY CANCER

DELAWARE 1940-1952

atory cancer has quadrupled in Delaware. The accompanying table shows a rise from 4.9 deaths per 100,000 population in 1940 to 19.8 for 1952. The rise has been partly due to the improved techniques for diagnosis. Many cases have been detected and reported which, in the past, would have been overlooked. This applies especially to diagnostic x-rays in medical and hospital practice. The increasing number of physicians trained and experienced in the diagnosis of cancer has helped along with the increased use of the bronchoscope and more cytological examinations of lung secretions.

The wide variation in the occurrence of lung cancer has led more to the study of environmental factors which may have contributed to the increase. Some environmental factors have been shown to produce lung cancer while for others the evidence is negligible. It is fairly well established that radioactive materials and some chromates cause lung cancer in experimental animals and in men in certain occupations. The suggestion that air pollution may be a factor is unsupported by any real evidence. The role of other factors, such as coal tar products, excessive tobacco smoking, and specific contaminants is still far from conclusive.

Whatever success can be achieved in the control of respiratory cancer depends mainly upon continuing popular education in the symptoms of the disease and promotion of measures for early detection and treatment. Periodic medical and x-ray examination of every person is the most productive means of accomplishing early recognition.

In light of the ever lowering tuberculosis mortality and morbidity rates in Delaware the routine mass x-ray examination may further lend itself to the detection of cancer of the respiratory tract, with special concentration on ages over thirty five years. It is evident that the mass x-ray is the only adequate means at our disposal for further reduction and eventual eradication of tuberculosis. This task is sizeable and it will not be easy or completed quickly. With our understanding of the nature of the problem and the knowledge available, there can be no doubt as to the success of tuberculosis eradication. With such success as we have now accomplished it is entirely feasible that a more active liaison could be introduced in mass x-rays to further the discovery of respiratory cancer findings as well as those related to tuberculosis in our future mass x-ray proceedings.

Comparative Mortality Rates From All Forms of Tuberculosis and Respiratory Cancer

	Tuberculosis Mortality		Respiratory Cancer Mortality	
	Number of Deaths	Rate of Mortality Per 100,000 Population	Number of Deaths	Rate of Mortality Per 100,000 Population
1940	126	47.2	13	4.9
1941	152	55.9	19	7.0
1942	138	49.9	23	8.3
1943	102	36.2	23	8.1
1944	123	42.8	35	12.2
1945	102	34.9	17	5.8
1946	128	43.0	31	10.4
1947	130	42.9	45	14.9
1948	118	38.3	44	14.3
1949	113	36.1	48	15.3
1950	71	22.3	64	20.1
1951	61	18.8	56	17.3
1952	55	16.7	65	19.8

NURSING IN THE DELAWARE CHEST X-RAY SURVEY

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Public health nursing is one of the essential services in a tuberculosis case-finding program. Nurses in every field are looked to by the public for information and guidance in matters pertaining to health. The nurse in her work with patients, families, and community groups teaches the importance of periodic physical examinations and chest x-rays; and advises persons with symptoms suggestive of illness to seek prompt medical attention. She also reports her observations to the patient's physician to assist him in handling the case.

When it was decided that Delaware was to have a state-wide chest x-ray survey, one of the first considerations was how to plan and provide for the necessary nursing services. The needs of patients found through a survey are basically the same as those found in any other way, but the survey finds a relatively large number of patients in a short period of time. Therefore, it is necessary to plan for an increased amount of nursing time to be available for tuberculosis service during and following the survey.

In addition to providing public health nursing services to an increased number of patients and their families in chest clinics and nursing supervision in the home, public health nurses are directly in charge of the retake center which is a part of survey operation. If 200,000 Delawareans are x-rayed, as is expected, we can estimate from data of similarly conducted community-wide chest x-ray surveys that have been done in other areas in the United States, there will be a total of 5,479 persons recalled for a 14x17 chest x-ray. These 14x17 x-rays will be taken at one of three retake centers. The retake centers will be located in Wilmington, Dover, and Georgetown.

The taking of the 14x17 x-rays and the nursing interview in the retake center are the beginning of the follow-up process, and the impression made upon the person who comes in for these purposes may decide whether he will follow later recommendations. Persons who are recalled may require considerable explanation of the reasons for having a second x-ray and the need for further diagnostic study if it is required. Most of the people recalled will have had no reason to believe they might be ill, and their reaction may be disbelief or alarm. The content of the interview and the counseling at this point must, of course, be adapted to the individual needs. One of the primary purposes of the interview is to make tentative plans for further diagnostic study if it is needed and to encourage continuation through the total diagnostic process until a diagnosis is made. In each interview the nurse (1) explains the reasons for taking the second film; (2) gives information about how and when the report on the 14x17 films will be received; (3) explains that x-ray interpretation alone does not provide a diagnosis of tuberculosis; and (4) gives assurance of help in planning for care if the need arises.

The other purpose of the nursing interview in the retake center is to obtain certain information to be used in follow-up. On the epidemiological form, the nurse records such information as the person's present and past occupation, any history of recent illness, or of tuberculosis or contact with it, and other significant information which will help those responsible for subsequent care. For example, it is important for the physician to know that a person has had pleurisy with effusion; and that the field nurse know that a patient who is found to have active tuberculosis has a baby at home who could be endangered by each additional day of exposure. At this time, the nurse also obtains the name of the physician to whom the report of the 14x17 x-ray is to be sent, or of the clinic if the person does not have a private physician.

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During the same period that the retake center operates, the State Board of Health nurses will still need to serve patients with other illnesses, staff the regularly held clinics and give health supervision to mothers, babies, crippled children, and others in need of their help. In order to meet this increased demand for nursing service the Division of Public Health Nursing has planned temporary adjustments in their program, and revised policies which govern the selection of tuberculosis cases for clinic and home nursing supervision. The Wilmington Visting Nurse Association and the Wilmington Board of Health are cooperating by lending nursing assistance during the time the retake center will be in operation.

The Nursing Committee also has accepted the responsibility of recruiting volunteer hostesses for the retake centers. They will assist in the orientation and training of these hostesses for their responsibilities during the survey. The Delaware League for Nursing and the Delaware Anti-Tuberculosis Society sponsored a two-day institute on tuberculosis nursing on July 14th and 15th. Nurses representing agencies, who attended this meeting were delegated the responsibility of carrying out an educational program on tuberculosis for nurses who were unable to attend the institute from their own agencies.

Nurses will also participate in the survey by working, along with other citizens of the state, in the general survey organization. Professionally, they take part in the survey organization through the nursing committee. On May 25th the State Nursing Committee was organized and made plans to take the necessary steps to inform all nurses in Delaware of the survey and to prepare them to instruct other groups and individuals about tuberculosis and the value of having a chest x-ray. An endeavor is being made to have all nurses in all fields of employment aware of their responsibility in the conduct of the chest x-ray survey in Delaware.

TYPHOID FEVER AND RAW MILK

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Typhoid fever, the scourge of the past, is still of interest to the practicing physician because: (1) while the disease is not common it still occurs sporadically; (2) its early diagnosis is usually not apparent; (3) treatment is now specific. The disease is of interest to the public health physician because: (1) the original source is most frequently from a chronic carrier; (2) a chain of transmission is not always apparent; (3) the supervision by the health department of the known typhoid carriers is a necessity.

The following report illustrates these points, plus the hazard of using raw milk and dairy products. Since November, 1950 it has been required that all commercial milk sold in Delaware be pasteurized. However, there are still many people who buy or accept raw milk from neighbors. These cases are brought to the attention of the Health Department by incidents such as the two cases of Typhoid fever that occurred in a town in Sussex County in April, 1953.

Case Histories

Case No. 1. Five year old white preschool child was admitted to the Nanticoke Memorial Hospital, March 31, 1953 with a history of gradual onset of fever, general malaise, anorexia, dry cough and headache for four days prior to admission. She had been treated with A.S.A. and fluids on day of onset with little improvement or change in the clinical picture: urinalysis March 29, 1953 was reported negative. The patient was seen again March 31, 1953. The clinical picture was unchanged and child was hospitalized for further study and treatment.

Past history was non-contributory. Patient was an 8 pound 13½ ounce full-term baby born spontaneously. Growth and development seemed normal. Dietary and vitamin intake had been adequate. No immunizations had been done. Childhood diseases included measles at age 3 years, mumps at age 4 years, and chicken pox at age 4 years, 10 months. Other past illnesses included pinworms in January, 1953, and whooping cough in February, 1953.

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Physical examination on admission revealed a well developed and well nourished five year old white female child who did not appear acutely ill. T: 103 (R) P: 150 R: 32. The physical examination was negative except for "slightly enlarged tonsils."

The report of a chest x-ray taken March 31, 1953 was: "the lower right lung markings are somewhat prominent and there is slight mottling of the right lower lung, consistent with a peribronchitis or a minimal pneumonitis without gross consolidation." Laboratory work on the day of admission revealed: Hb. 11 grams; RBC: 3,530,000; WBC: 8,500 with 68% neutrophilis, 28% lymphocytes and 4% monocytes. Urinalysis: negative; EKG March 31, 1953 revealed "a sinus tachycardia with right-sided hypertrophy, marked-?". April 1, 1953 with this information at hand a working diagnosis of pneumonitis with right-sided cardiac hypertrophy was made. Terramycin 250 mgm. was given orally every 6 hours and digitalization as a prophylactic measure was started.

The course in hospital remained essentially unchanged. Temperature (R) ranged from 97 degrees to 104 degrees F. and was septic in type. The pulse gradually slowed from 150 to 110-116 on digitalization. Respirations varied from 32 to 20 and the dry cough persisted. B.M. were regular 1 x day and were slightly loose in character.

On April 3, 1953 sedimentation rate was 27 mm in 1 hour, and blood was drawn for agglutinations for typhoid, paratyphoid, and undulant fever. These were reported April 6, 1953 as negative for undulant fever and paratyphoid fever. The widal was positive in dilutions of 1-640.

Chloromycetin palmitate 1250 mgm. was given stat and 250 mgm. every 6 hours by mouth. On this regime the temperature fell by lysis, convalescense was rapid and uneventful and patient was discharged April 12, 1953.

Stool specimens have remained negative after discharge.

Case No. 2. Mother of 5 year old child was admitted to the Nanticoke Memorial Hospital April 4, 1953 with chief complaint of "fever and feeling rotten." The present illness began 4 days before admission with gradual onset of fever, malaise, headache, and "a sore nose." She was seen by her family physician who gave her injections of penicillin daily for 3 days because of a small abscess in nose. The patient showed little or no improvement and was referred by her family physician to the hospital for further study.

Physical examination on admission revealed a well developed and well nourished, acutely ill, 26 year old white female. T: 101.4; P: 116; R: 20; B.P. 106/68. Head, E.E.N.T. appeared normal. The neck was supple; heart and lungs normal to auscultation and percussion. The abdomen was soft, non-tender, and there were no masses or palpable organs. Neurological examination was not remarkable.

Routine C.B.C. April 4, 1953 was reported: Hb. 13 grams; RBC 4,350,000; WBC: 4,800 with 66% neutrophiles, 26% lymphocytes and 8% monocytes . Urinalysis (cath.) was reported as showing two-plus albumen but was otherwise negative. Blood Wassermann and Kahn were negative.

Chest x-ray April 4, 1953 was reported: "The heart is within normal limits in size. The bronchovascular markings are increased in each lung field; this is more marked in right base. The peripheral lung fields are clear. The diaphragm and bony thorax are normal. The findings are consistent with acute peribronchitis."

The patient was started on aureomycin 500 mgm. stat and 250 mgm. every 6 hours. Blood was drawn for agglutinations and culture on April 9, 1953. The agglutinations were reported: Widal—negative; undulant fever—negative; paratyphoid A & B negative. On April 10, 1953 the blood culture was reported as positive for typhoid bacilli.

The hospital course was stormy with almost continual nausea and vomiting. On April 6, 1953 when her daughter's agglutinations were reported positive she was placed on chloromycetin 2500 mgm stat and 750 mgm every 6 hours by mouth. Her temperature which had been swinging from 97 degrees to 104 degrees in a septic type curve fell by lysis, and convalescence from that point on was rapid and uneventful. The patient was discharged April 12, 1953.

Stool specimen collected April 13, 1953 was reported positive, but subsequent specimens have all been negative.

Epidemiological Investigation

Report of these 2 cases of typhoid fever reached the Health Unit April 13, 1953. Investigation revealed that there were 7 members of the household: father, mother (patient), son age 7, daughter (patient), brother of father age 28, and the two maternal grandparents. Other contacts were Mr. A, white, male, 79 years, who had no history of typhoid and his wife, Mrs. A, who gave a history of typhoid 48 years ago. (This family sold raw milk, cream and butter to the family with typhoid and employed Mr. B. to milk the cows).

Water and sewage were public systems. Pasteurized milk was obtained from an approved dairy and raw milk, cream, and butter had been purchased from Mrs. A. Ice cream was obtained from an approved source. Ice was made in a refrigerator at home. Seafoods, vegetables, and fruits were purchased from a supermarket in town. The house was screened and there was no evidence of flies or fly breeding on the premises. The only recent trip away from home was one made to a Cub Scout Camp from which drinking water was obtained from a shallow well.

Recent regular bacteriological examination of the public water system had been negative. An examination done at time of the investigation was also negative. The sewage disposal system was considered to be satisfactory.. The plumbing in the home showed no deficiencies or evidence of cross connections. Milk from the approved dairy had been bacteriologically safe both on recent analyses and at the time of investigation. The local drug store's refrigeration facilities were adequate and there could be found no evidence of contamination of food products at this source. It was considered unlikely that food products from the supermarkets were involved since no other cases had occurred in the area served by this store.

The probable sources of infection at this point in the investigation were: (1) raw milk and dairy products from Mrs. A; and (2) Cub Scout Camp site well. A sample of water from the well at the camp site was reported by the Board of Health Laboratory to be safe.

Stool specimens were taken from all members of the household including Mr. and Mrs. A and their milker. Cultures were negative except that of Mrs. A which revealed typhoid bacilli. This led us to suspect that Mrs. A was the source of the typhoid outbreak. Epidemiological studies pointed to the possible transmission of the disease by raw milk and dairy products from Mrs. A to the two persons affected since this was the only method of contact with the carrier. Mrs. A bottled the milk and cream and churned and molded the butter.

Discussion

The onset of the two cases occurred within a 5 day period. Since the incubation period of typhoid fever has a range of 3-38 days, usually average 7 to 14 days, it seems reasonable to assume that the two cases were primary cases, possibly coming from a common source.

The routine epidemiological investigations along with the positive stool specimen from Mrs. A was enough to bring to light the probable source of the two cases and their transmission by raw milk and dairy products. The difficult part for the local public health personnel was dealing with Mrs. A who was unwilling to accept the facts: (1) that she was a typhoid carrier; and (2) that she was illegally selling raw milk. She was finally able to understand that she had to stop selling raw milk and dairy products but, she continued to bake cakes which she gave to her neighbors, who had to be contacted and warned of the potential danger of these gifts of food.

The problem of dealing with recalcitrant chronic carriers is a difficult one, and as yet has not been solved to everyone's satisfaction. The measures taken in some states appear drastic but even these have not been entirely effective. Chloromycetin, which seemed to offer so much promise at first, has not, in its present form, lived up to its early expectations in the treatment of chronic carriers.[1]

Nor is the recalcitrant carrier our total problem. A recent survey in New York State showed that only 16% of the entire total number of carriers were known carriers under the supervision of the Board of Health.[2]

The problem of typhoid fever has now become one of sporadic cases and focal outbreaks. Control has become increasingly a matter of prompt diagnosis and isolation of the patient for the protection of the contacts and the tracing of the source of infection. The discovery and supervision of carriers has become an important function of the health department.

The long range view of typhoid fever is bright. The ultimate reservoir of infection is the number of carriers in the population. Their number is being decreased through deaths more rapidly than they are being replaced by new carriers arising from cases. The balance is against the survival of the disease.

Summary

1. Two cases of typhoid fever probably transmitted by raw milk and dairy products are presented.
2. The source of these two cases and the method of transmission was brought to light by routine epidemiological investigation and laboratory studies.

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INFECTIOUS HEPATITIS IN A RURAL COMMUNITY

Report of a Mild Outbreak

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This outbreak of infectious hepatitis occurred in a small rural community with most of the cases occurring in the local grade school. There is no common meeting place in the community except the school and the church. There is one small community store, no theaters or no public eating places. The school is a small modern building which accommodates approximately one hundred children ranging in ages from six to twelve years. Although the first six grades are represented, the children are divided into one and one-half grades per room since only four rooms are available. Although some contact exists between students of various rooms, the school principal and nurse both agreed that there is indeed very little. Intra-room contact, however, is great.

The outbreak consisted of 8 known possible cases of infectious hepatitis (IH) occurring between November 5, 1952 through January 7, 1953. Of the eight cases, seven had evidence of jaundice, whereas one case with mild symptoms did not show any evidence of jaundice. This outbreak was limited to children attending one school and their families, with the exception of one case which occurred in a student attending a high school in another community, and as such may not be related to this outbreak at all, although subclinical cases in her family group could be an explanation for this epidemic since younger children in this family attend the local grade school.

It can be noted in Table I that of the eight cases three were secondary family cases occurring at least twenty days after the original case in the same family. Five different families were represented in this epidemic in which there were a total of twenty-six members. Hence, there were a total of eighteen home contacts, eight of whom were adults and the remainder were children under fifteen years of age. Of the eight cases, five occurred in the local school with three cases occurring in the same room.

Investigation of this outbreak did not reveal any common source of infection for the early cases which developed. A thorough investigation of the sanitary facilities in the school revealed that the water supply was obtained from a drilled well on the school premises which was adequately protected from any source of pollution. This was further confirmed by a bacteriological examination of the water. However, there were two drinking fountains located at each end of the corridor in the school and one fountain located on the grounds outside. Each fountain was equipped with a mouth guard which may have been a possible source of contamination.

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There were adequate toilets and wash basins for the children and faculty. Sewage disposal was of the individual type and located about 175 feet from the well. There was no cafeteria. All personnel brought their own lunch and purchased milk at the school. Milk was supplied in individual one-half pint containers and kept in a good refrigerator.

In the homes where cases had occurred, all water supplies were found to be free from contamination. All cases and contacts attended religious services at two places. There had been no church suppers or other community functions at which food had been served in the past several months. There was no indication that the spread had been caused by this means.

Since this epidemic was one of person-to-person spread and not caused by a common vehicle, as is demonstrated by the onset dates of the disease, the following steps were taken to curb the epidemic. The guards from the water fountains were ordered removed to prevent any possibility of contamination. A closely directed handwashing campaign was instituted for the students of the school. Since the epidemic was mainly confined to family contacts when it was brought to the attention of the Health Department it was felt that gamma globulin should only be administered to family contacts and not to the entire school population.

EPIDEMIOLOGY

Infectious hepatitis has a world wide distribution and due to the lack of specific diagnostic tests its prevalence is not well known. Many cases pass unrecognized since some patients are preicteric or entirely unicteric throughout the entire course of the disease and only present mild gastro-intestinal symptoms. These cases can be detected during an epidemic but otherwise are usually diagnosed as G-I upsets.

The disease is most prevalent in the autumn and winter months. It is mainly a disease of children and young adults although all ages are susceptible. People of the older age groups appear to be less susceptible to this disease, as was shown by the incidence among our American troops in World War II. Men over thirty-three years of age had only one-third the incidence found in younger men.[1] Institutional, military and family outbreaks occur quite frequently. In families, the usual pattern is that one member develops the disease then, in about three or four weeks, other members in the family begin to develop symptoms of the disease. This type of spread may also occur in institutional or military epidemics but commonly the outbreak may be of an explosive nature.

It has been well established that infectious hepatitis spreads by at least two media: feces, and blood or blood products. Natural transmission with feces is possible directly through person to person contact[1] or indirectly by contaminated water,[2] food,[3] milk,[4] and possibly through mechanical transfer by flies.[5]

Its unnatural transmission as well as that of serum hepatitis takes place through the use of contaminated blood or blood products, and by the use of inadequately sterilized syringes and needles.[6] It is important to remember that the hepatitis virus is very resistant to the common chemical antiseptics and that heat sterilization is necessary to destroy this agent.

TABLE I.

Cases listed as to dates of onset, school and family distribution.

Case #	Family	Age	Sex	Onset Date	School	Room	Jaundice
1	A	14	F	Nov. 5-52	B	—	Yes
2	B	11	M	Nov. 5-52	A	3	Yes
3	C	10	M	Nov. 18-52	A	3	Yes
4*	B	40	F	Nov. 25-52	—	—	Yes
5	D	9	F	Dec. 3-52	A	3	Yes
6	E	6	M	Dec. 8-52	A	1	No
7*	E	8	F	Jan. 7-53	A	2	Yes
8*	E	40	F	Jan. 7-53	—	—	Yes

* Secondary family cases

Prevention and Control

Since only two methods of transmission of this disease are known, control measures must be directed towards the interruption of the intestinal-oral route of transmission and of the parenteral route of transmission. Attention should be directed at general measures such as personal cleanliness, home hygiene and community sanitation. Recognized clinical cases should be placed under typhoid-type isolation with special attention directed toward safe fecal disposal. The risk of parenteral transmission can be reduced by proper heat sterilization of syringes, needles, and stylets which have been in contact with blood or blood derivatives.

It was first shown in 1945[7] and later corroborated by others[8,9] that normal human gamma globulin confers temporary passive protection if given during the incubation period up to within six days before the onset of the disease. The dosage which the committee on the distribution of gamma globulin in Delaware recommended for use as prophylaxis is 0.02 c.c. per pound of body weight, with a maximum of 4 c.c. to any one individual.

It is recommended for family or institutional contacts. Although gamma globulin is effective in protecting against infectious hepatitis, recent studies reveal that it does not appear to confer any passive protection against homologous serum hepatitis.[10]

Summary

A mild epidemic of infectious hepatitis in a rural community is reported with a majority of cases occurring in the local school. This outbreak was propagated through person to person spread. No source of infection was demonstrated for the initial cases although it is suspected that a mild subclinical case in the school may have been the original source of contact.

The epidemiology of this disease has been discussed as well as the control and preventive measures which are known to be effective against this disease.

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IMMUNIZATION OF DELAWARE'S INFANTS

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The State Board of Health initiated in April, 1951 the procedure of mailing a letter on immunization to the parents of all newborns. This letter is sent when the baby is approaching his fourth month. It stresses protection at an early age and outlines a recommended course of primary and booster immunizations. The parents are urged to take their child to their private physician or to one of the listed well child conferences conducted by the State Board of Health.

Enclosed with the letter is a set of immunization certificate forms—a copy for the parents, one for the physician, and one to be completed and returned by the physician or clinic to the State Board of Health. The parents are requested in the letter to take these certificate forms to their physician or to the well child conference. A letter explaining the certificate forms and the private physician's part in completing them and mailing a copy to the State Board of Health was also sent in April, 1951 to every Delaware physician. The full cooperation of all practicing physicians was requested to effect the immunization of as nearly 100% of all babies as possible. The State Board of Health hoped its letter would tend to stimulate immunization. It also thought the return of its copy of the certificate form would enable it to derive an estimate of the extent of immunization being carried on.

The return of the certificate forms to the

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State Board of Health was disappointing. The number received was so small that it was obvious it did not reflect the extent of immunization in Delaware. The State Board of Health therefore decided to conduct a special survey to ascertain the status of immunization among Delaware's newborn children. The period January 1, 1952 through March 31, 1952 was chosen. A careful check of vital statistics files revealed 7 reported deaths in this group and these were excluded. Infants whose mothers resided in neighboring states but who were delivered in Delaware were also excluded. This left 1882 births during this period, and 118 births in April, 1952 were added to round the survey number to 2000.

PROCEDURE FOLLOWED

A card was set up for each of the 2000 children included in the survey study, and information received on each child was listed upon it. The immunization certificate returns were first checked, and all certificates on children included in the survey were listed. On January 30, 1953 a letter was sent to the parents of all children for whom an immunization certificate had not been received. This letter was sent first-class so that it would be returned if the family were not located. Enclosed with the letter was a return-addressed, stamped postal card listing the child's name and birth certificate number. The purpose of the survey was explained in the letter and instructions given for completing the postal card. The parents were requested to check whether or not the child had been immunized, the type of immunization given and to write in the number of injections given and the name of the physician or clinic who performed the immunizations.

The information on a small number of the returned postal cards was indefinite or questionable. A letter containing a check form and a return-addressed, postage free envelope was sent to the physician or well child conference on these returns so that accurate information might be secured.

A second follow-up letter was sent on May 1, 1953 to all parents who had failed to return their postal cards, with the exception of those where the letters had been returned as not located. Enclosed was a mimeographed form similar to the postal card, and a return-addressed, postage free envelope. The second letters returned as ''not located'' were added to the *not located count.*

In some instances an immunization certificate form was received after the letter with the postal card had been mailed. These were included in the certificate group and not counted in the postal card group. In a few cases a postal card reply was received after the second letter had been sent. These were included in the postal card group and dropped from the second letter count. No reply of any sort received after June 30, 1953 was included.

The 2000 children included in the survey were separated on a county-of-residence basis and further divided into white and non-white groups.

Returns in which the type of immunization given was obscure or questionable were listed as *undetermined.* Those where the type of immunization was clear, but which were either noted as being incomplete or where the number of injections given would so designate, were listed as *incomplete.* Nineteen replies received from out of state where the immunization had been performed by a Delaware physician, probably prior to moving from Delaware, were listed with the Delaware group. The other 36 *out-of-state* returns were listed as such. All diphtheria, pertussis, and tetanus immunizations, in which triple vaccine was not used, were included among *other than triple vaccine.*

The final tabulation was made on the basis of information secured from the immunization certificates, the postal card returns (with corrections obtained from physicians or clinics on questionable replies), and the returns on the second follow-up letters. The questionable returns from the second letters were not followed by questionnaires to physicians, but were listed as *undetermined.*

RESPONSE TO SURVEY LETTERS

The responses to the various letters for each county are shown in the first part of Tables I, II and III. The survey results for the entire state are shown in the first part of Table IV.

TABLE I
IMMUNIZATION STUDY
Jan. 1 - Mar. 31, 1952

NEW CASTLE COUNTY
PART 1

	White Number	White Percent	Non-White Number	Non-White Percent	Combined Number	Combined Percent
1. Number in follow-up study	1179	84.8%	210	15.2%	1389	100%
2. Certificates received	101		37		138	
Well Child Conferences	51		36		87	
Private Physicians (16)	50		1		51	
3. 1st letters mailed	1078		173		1251	
4. Postal cards returned	528	49.0% (1)	36	20.8% (1)	564	45.1% (1)
5. Check-up Forms to Physicians	81		12		93	
6. Check-up Forms returned	71	87.7% (2)	6	50.0% (2)	77	82.8% (2)
7. 2nd letters mailed	539		147		686	
8. Mimeo'd forms returned	221	41.0% (3)	31	21.1% (3)	252	36.7% (3)
9. Returns—postal cards and mimeo'd forms (81 physicians)	749	69.5% (1)	67	38.7% (1)	816	65.2% (1)
10. Not located—1st and 2nd letters	67	6.2% (1)	16	9.2% (1)	83	6.6% (1)
11. No reply—to both 1st and 2nd letters	262	24.3% (1)	90	52.0% (1)	352	28.1% (1)

(1) — based on numbers in line 3
(2) — based on numbers in line 5
(3) — based on numbers in line 7

INFORMATION FROM CERTIFICATES AND ALL OTHER RETURNS

PART 2

	White Number	White Percent	Non-White Number	Non-White Percent	Combined Number	Combined Percent
Certificate, Postal Cards and Mimeo'd Returns	850	82.1% (4)	104	49.5% (4)	954	68.6% (4)
No immunization	82	9.6%	17	16.3%	99	10.4%
Triple Vaccine (DPT)	659	77.5%	69	66.3%	728	76.3%
Well Child Conferences	72	8.5%	59	56.7%	131	13.7%
Private Physicians	587	69.0%	10	9.6%	597	62.6%
Other than Triple Vaccine	18	2.1%	1	1.0%	19	2.0%
Smallpox Vaccination	239	28.1%	43	41.3%	282	29.5%
Well Child Conferences	31	3.6%	36	34.6%	67	7.0%
Private Physicians	208	24.5%	7	6.7%	215	22.5%
Incomplete	35	4.1%	2	1.9%	37	3.9%
Well Child Conferences	6	0.7%	2	1.9%	8	0.8%
Private Physicians	29	3.4%	0	0.0%	29	3.1%
Out-of-State Immunizations	31	3.6%	1	1.0%	32	3.4%
Triple Vaccine	28		1		29	
Other than Triple Vaccine	3		0		3	
Smallpox Vaccination	19		1		20	
Undetermined	19	2.2%	9	8.7%	28	2.9%
Deceased	6	0.7%	5	4.8%	11	1.2%

(4) based on line 1, total number in follow-up study

Returns on letters sent. The percentage of returns of the postal cards and the second follow-up letters was considerably better from the white than the non-white groups in all three counties. The best general response to the postal cards came from Kent County, mainly because of the higher response from the non-white group in this county than from the non-whites in the other counties. The poorest general response came from Sussex County with the response from the white group much lower than that from the white groups in New Castle and Kent Counties.

The response to the second follow-up letter was also better from the white than the non-white groups, though not to so great a degree as to the postal cards. Again Kent County had the best general response, Sussex County was next with a greatly increased response from both the white and non-white groups.

The combined response from both postal cards and second follow-up letters was best from Kent County. Statewide, the response from the white group was 70%, from the non-white 43%, for a combined response of 65.4%.

The physician response to the check-up questionnaires on the questionable postal card return was very good, almost all forms having been returned.

TABLE II
IMMUNIZATION STUDY
Jan. 1 - Mar. 31, 1952

KENT COUNTY
PART 1

	White		Non-White		Combined	
	Number	Percent	Number	Percent	Number	Percent
1. Number in follow-up study	228	76.5%	70	23.5%	298	100.0%
2. Certificates received	23		19		42	
Well Child Conferences	13		19		32	
Private Physicians (6)	10		0		10	
3. 1st letters mailed	205		51		256	
4. Postal cards returned	101	49.3% (1)	17	33.3% (1)	118	46.1% (1)
5. Check-up Forms to Physicians	10		5		15	
6. Check-up Forms returned	9	90.0% (2)	5	100.0% (2)	14	93.3% (2)
7. 2nd letters mailed	107		38		145	
8. Mimeo'd forms returned	55	51.4% (3)	10	26.3% (3)	65	44.8% (3)
9. Returns—postal cards and mimeo'd forms (17 physicians)	156	76.1% (1)	27	52.9% (1)	183	71.1% (1)
10. Not located—1st and 2nd letters	15	7.3% (1)	3	5.9% (1)	18	7.0% (1)
11. No reply—to both 1st and 2nd letters	34	16.6% (1)	21	41.2% (1)	55	21.5% (1)

(1) — based on numbers in line 3
(2) — based on numbers in line 5
(3) — based on numbers in line 7

INFORMATION FROM CERTIFICATES AND ALL OTHER RETURNS

PART 2

	White		Non-White		Combined	
Certificate, Postal Cards and Mimeo'd Returns	179	78.5% (4)	46	65.7% (4)	225	75.5% (4)
No immunization	44	24.6%	5	10.9%	49	21.8%
Triple Vaccine (DPT)	109	60.9%	37	80.4%	146	64.9%
Well Child Conferences	23	12.8%	29	63.0%	52	23.1%
Private Physicians	86	48.1%	8	17.4%	94	41.8%
Other than Triple Vaccine	7	3.9%	0	0.0%	7	3.1%
Smallpox Vaccination	37	20.7%	6	13.0%	43	19.1%
Well Child Conferences	9	5.0%	4	8.7%	13	5.8%
Private Physicians	28	15.7%	2	4.3%	30	13.3%
Incomplete	10	5.6%	2	4.3%	12	5.3%
Well Child Conferences	2	1.1%	1	2.1%	3	1.3%
Private Physicians	8	4.5%	1	2.1%	9	4.0%
Out-of-State Immunizations	3	1.7%	0	0.0%	3	1.3%
Triple Vaccine	1		0		1	
Other than Triple Vaccine	2		0		2	
Smallpox Vaccination	2		0		2	
Undetermined	3	1.7%	1	2.1%	4	1.8%
Deceased	3	1.7%	1	2.1%	4	1.8%

(4) based on line 1, total number in follow-up study

Immunization Certificates. A glance at the breakdown of the immunization certificates shows the poor response and the fact that while 119 physicians were listed on the postal card and second letter replies only 29 had sent in one or more immunization certificates —in other words, only 1 out of 4.

Combined information from certificates and other returns. When the certificate returns were added to the postal card and second letter replies, the counties tended more nearly to balance. Kent County still had the highest return with New Castle County next and Sussex County last.

Comments. The 65.4% return on the postal card and second letters is considered a good response. These replies, plus the certificates, afforded information on 1383 children, or 69.2% (72.6%) of the white group, 54% of the non-white group) of the number in the survey. This is considered a large enough group from which to draw valid conclusions.

The survey letters aroused some additional interest in immunization. A number of parents took pains to explain why their child had not been immunized to date. Others indicated that they plan to take their child to a physician or clinic. The 55 replies from

TABLE III
IMMUNIZATION STUDY
Jan. 1 - Mar. 31, 1952

SUSSEX COUNTY
PART 1

	White Number	White Percent	Non-White Number	Non-White Percent	Combined Number	Combined Percent
1. Number in follow-up study	221	70.6%	92	29.4%	313	100%
2. Certificates received	22		16		38	
Well Child Conferences	3		15		18	
Private Physicians (7)	19		1		20	
3. 1st letters mailed	199		76		275	
4. Postal cards returned	72	36.2% (1)	16	21.1% (1)	88	32.0% (1)
5. Check-up Forms to Physicians	10		4		14	
6. Check-up Forms returned	10	100% (2)	2	50.0% (2)	12	85.7% (2)
7. 2nd letters mailed	125		56		181	
8. Mimeo'd forms returned	59	47.2% (3)	19	33.9% (3)	78	43.1% (3)
9. Returns—postal cards and mimeo'd forms (21 physicians)	131	65.8% (1)	35	46.1% (1)	166	60.4% (1)
10. Not located—1st and 2nd letters	8	4.0% (1)	4	5.3% (1)	12	4.4% (1)
11. No reply—to both 1st and 2nd letters	60	30.2% (1)	37	48.7% (1)	97	35.3% (1)

(1) — based on numbers in line 3
(2) — based on numbers in line 5
(3) — based on numbers in line 7

INFORMATION FROM CERTIFICATES AND ALL OTHER RETURNS

PART 2

	White Number	White Percent	Non-White Number	Non-White Percent	Combined Number	Combined Percent
Certificate, Postal Cards and Mimeo'd Returns	153	69.2% (4)	51	55.4% (4)	204	65.2% (4)
No immunization	48	31.4%	19	37.3%	67	32.8%
Triple Vaccine (DPT)	90	58.8%	26	51.0%	116	56.9%
Well Child Conferences	10	6.5%	24	47.1%	34	16.7%
Private Physicians	80	52.3%	2	3.9%	82	40.2%
Other than Triple Vaccine	7	4.6%	1	2.0%	8	3.9%
Smallpox Vaccination	17	11.1%	4	7.8%	21	10.3%
Well Child Conferences	3	2.0%	2	3.9%	5	2.5%
Private Physicians	14	9.1%	2	3.9%	16	7.8%
Incomplete	7	4.6%	2	3.9%	9	4.4%
Well Child Conferences	3	2.0%	2	3.9%	5	2.5%
Private Physicians	4	2.6%	0	0.0%	4	1.9%
Out-of-State Immunizations	0	0.0%	1	2.0%	1	0.5%
Triple Vaccine	0		1		1	
Other than Triple Vaccine	0		0		0	
Smallpox Vaccination	0		0		0	
Undetermined	1	0.7%	2	3.9%	3	1.5%
Deceased	0		0		0	0.0%

(4) based on line 1, total number in follow-up study

out-of-state also indicated the parents' interest and concern in immunization. These replies came from 22 different states and one territory. Pennsylvania, New Jersey, Maryland, New York, Connecticut, Massachusetts, New Hampshire, Virginia, West Virginia, North Carolina, Georgia, Florida, Louisiana, Ohio, Kentucky, Missouri, Michigan, Wisconsin, Oklahoma, Texas, Colorado, California, and Alaska. These out-of-state replies and the number of letters returned as "not located" indicate the constant movement of population from one locality to another.

Analysis of Survey Information

The information obtained from the certificate and replies for each county is shown in the second part of Tables I, II, and III. The information obtained for the entire state is shown in the second part of Table IV.

Ratio of white to non-white in survey group. The ratio of white and non-white children in the survey varied considerably by county. New Castle County had slightly better than a 5-1 ratio; Kent a little better than a 3-1 ratio; and Sussex a little under a 2½-1

TABLE IV
IMMUNIZATION STUDY
Jan. 1 - Mar. 31, 1952

STATE WIDE
PART 1

	White		Non-White		Combined	
	Number	Percent	Number	Percent	Number	Percent
1. Number in follow-up study	1628	81.4%	372	18.6%	2000	100%
2. Certificates received	146		72		218	
Well Child Conferences	67		70		137	
Private Physicians (29)	79		2		81	
3. 1st letters mailed	1482		300		1782*	
4. Postal cards returned	701	47.3% (1)	69	23.0% (1)	770	43.2% (1)
5. Check-up Forms to Physicians	101		21		122	
6. Check-up Forms returned	90	89.1% (2)	13	61.9% (2)	103	84.4% (2)
7. 2nd letters mailed	771		241		1012	
8. Mimeo'd forms returned	335	43.5% (3)	60	29.0% (3)	395	39.0% (3)
9. Returns—postal cards and mimeo'd forms (119 physicians)	1036	70.0% (1)	129	43.0% (1)	1165	65.4% (1)
10. Not located—1st and 2nd letters	90	6.0% (1)	23	7.7% (1)	113	6.3% (1)
11. No reply—to both 1st and 2nd letters	356	24.0% (1)	148	49.3% (1)	504	28.3% (1)

(1) — based on numbers in line 3
(2) — based on numbers in line 5
(3) — based on numbers in line 7

INFORMATION FROM CERTIFICATES AND ALL OTHER RETURNS

PART 2

Certificate, Postal Cards and Mimeo'd Returns	1182	72.6% (4)	201	54.0% (4)	1383	69.2% (4)
No immunization	174	14.7%	41	20.4%	215	15.5%
Triple Vaccine (DPT)	858	72.6%	132	65.7%	990	71.6%
Well Child Conferences	105	8.9%	112	55.7%	217	15.7%
Private Physicians	753	63.7%	20	10.0%	773	55.9%
Other than Triple Vaccine	32	2.7%	2	1.0%	34	2.5%
Smallpox Vaccination	293	24.8%	53	26.4%	346	25.0%
Well Child Conferences	43	3.6%	42	20.9%	85	6.1%
Private Physicians	250	21.2%	11	5.5%	261	18.9%
Incomplete	52	4.4%	6	3.0%	58	4.2%
Well Child Conferences	11	0.9%	5	2.5%	16	1.2%
Private Physicians	41	3.5%	1	0.5%	42	3.0%
Out-of-State Immunizations	34	2.9%	2	1.0%	36	2.6%
Triple Vaccine	29		2		31	
Other than Triple Vaccine	5		0		5	
Smallpox Vaccination	21		1		22	1.6%
Undetermined	23	1.9%	12	6.0%	35	2.5%
Deceased	9	0.8%	6	3.0%	15	1.1%

(4) based on line 1, total number in follow-up study

ratio. Statewide, the ratio of white to non-white children was approximately 4-1.

No Immunization. The returns showed Sussex County with the highest percentage of no immunizations. New Castle County showed the lowest percentage of no immunizations, while Kent County was midway between. In both New Castle and Sussex Counties the non-white groups showed a higher percentage of no immunizations than did the white groups. However, in Kent County the white group had a higher percentage of non-immunized children than the non-white group. The white group in New Castle showed the lowest degree of non-immunizations, with the non-white group in Kent County next lowest.

The replies to the second letter contained a higher percentage of no immunizations than did the postal cards. Whereas only 95 or approximately 12% of the 770 postal cards returned indicated no immunization, 120 of the 395 second letter returns, or approximately 30%, listed no immunization.

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*Actually 1856 letters with postal cards were mailed. In 74 instances immunization certificates were received subsequent to mailing the follow-up letters. These 74 were included in the certificate count and excluded from all postal card counts. On basis of 1856 approximately 63% replies were received.

Immunization against Diphtheria, Pertussis and Tetanus. Triple vaccine was used with but very few exceptions. The highest percentage of immunization with triple vaccine was shown by the non-white group in Kent County. The white group in New Castle was next. The counties varied in their degree of immunization. New Castle had the highest percentage of diphtheria, pertussis and tetanus immunization with approximately 8 out of 10 children. Kent was second with about 7 out of 10, and Sussex poorest with 6 out of 10.

Statewide, approximately 74% of the replies, excluding out-of-state returns, indicated their child had been immunized against diphtheria, pertussis and tetanus. If the out-of-state replies are included, the percentage rises to slightly over 76%. This percentage would rise to 79% if the undetermined group were also included and could rise to 83% if one assumed that all incompleted immunizations were completed. At worst, assuming that all those not located and all failures to reply indicated no immunization, approximately 53% (1060 out of 2000) or slightly better than 1 out of every 2 infants were immunized, statewide, during the first year of life or thereabouts.

Where products other than triple vaccine were used for immunization, about half still received immunization against diphtheria, pertussis and tetanus. A few children were immunized against diphtheria alone. One physician supplemented the use of triple vaccine with added immunization against pertussis.

Smallpox Vaccination. Smallpox vaccination was highest among the non-white group in New Castle County. Next highest was the white group of that same county. The returns indicate that only 1 out of every 4 children is vaccinated during or shortly after the first year. The extent of vaccination is particularly low in Sussex County, where the replies indicate about 1 out of 10. Again, if one were to assume that all those not located and all failures to reply indicated no vaccination, the percentage would drop to 18% (368 out of 2000) or less than 1 out of 5 children on a state-wide basis. It is interesting to note that 61% (22 out of 36) of the children immunized out of state against diphtheria, pertussis, and tetanus were vaccinated against 34% (346 out of 1024) of the group so immunized in Delaware.

By Whom Performed. Four infants were immunized by private physicians for every infant immunized at a well child conference. The returns indicated that by far the greater percentage of the white group in each county was immunized by private physicians, while the non-white groups in all three counties had their immunizations performed principally at well child conferences conducted by the State Board of Health. For the white group the ratio was approximately 7 by private physicians for 1 at a well child conference. For the non-white group for every child immunized by private physicians, there were approximately 6 immunized at well child conferences. Kent County provided the highest percentage of immunization by private physicians to the non-white groups.

Comment. The fact that the second letters contained a higher percentage of no immunization replies than did the postal cards would indicate that had there been a third or fourth follow-up letter, the percentage of no immunization in successive replies would increase. On this basis one might predict that the percentage of immunization against diphtheria, pertussis, and tetanus is around 70% and the percentage of vaccination probably below 20%.

Summary

The immunization status of 2000 infants was followed up about a year after birth. Information secured on approximately 70% of the group revealed that 76.7% had been immunized against diphtheria, pertussis and tetanus, but only 26.6% had been vaccinated against smallpox.

The low percentage of smallpox vaccinations during or shortly after the first year of life warrants a greatly increased effort on the part of the physicians and others concerned to improve the situation.

Although the degree of immunization of infants against diphtheria, pertussis, and tetanus is encouraging, continued stress on such immunization is necessary if Delaware is to approach the goal of 100% immunization.

RETRENCHMENT IN VD CONTROL ACTIVITY

Winder L. Porter, M.D., M.P.H.,*
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The antibiotic era has entirely revolutionized the program for venereal disease control. The story is now familiar both as to notable success in preventing further spread of infection as well as to gratifying adaptability for prompt and efficient management of infections of all ages. Reduction in case load and lessened attention required for each patient has quite properly led to reduction in clinic sessions and to lower appropriations for VD control. But there remains a large area of activity necessary to screen many individuals to discover other unknown cases which already exist, and to track down newly acquired infections and their sources. There is the further obligation to follow each treated patient to insure that his treatment has brought him the maximum benefit to be expected. Budgetary restriction then is not unexpected, but the Delaware State Board of Health had not anticipated that the U.S.P.H.S. would completely eliminate its support for the venereal disease control program, and so must now exercise stringent economies to be able to conduct a program at all.

There was a time when we could boast that no patient in Delaware need travel more than 15 miles to reach a clinic operated by the State Board of Health for treatment of venereal disease. Elimination of clinics at Seaford and Lewes have already made that boast obsolete; now it will become just a memory. In essence, what now will be obtained will be the maintenance of a single diagnostic clinic in each county with weekly sessions to screen patients and their contacts and to outline for them the best management obtainable under the circumstances. In Sussex County, a clinic will be held at Georgetown only. Convenience of location and accessibility to the laboratory would dictate that the diagnostic clinic for Kent County be held at the Dover offices. However, a session here will be conducted only once per month, while the regular weekly clinic at Milford will be maintained because the case load in this area is more productive, embracing more treated patients to be followed, more new infections, and more contacts in need of investigation. The Smyrna clinic will be abandoned.

There will be no regular VD clinic in rural New Castle County, although the health officer will attempt to establish machinery to care for the occasional problem case presented when referral into Wilmington cannot be carried through. Wilmington clinics will no longer operate daily, but will be conducted on three days each week with hours staggered to meet the needs of shift workers.

It becomes necessary to dispense with capable clinicians who have given years of loyal and efficient service. Clinics, henceforth, will be conducted by health officers and other full-time staff physicians.

To lessen demands upon the time of nursing personnel, epidemiologic activity will be approached from an entirely different point of view. Priority will continue to be given to pregnant women with syphilis and to contacts of known infectious cases. Patients who have had syphilis less than two years will be closely followed while responsibility for most other patients will be surrendered when their treatment is completed. They will be advised as to the need for further observation at stated intervals, but no effort will be made to locate them if they fail to return. Gonorrhea patients and female contacts named by gonorrhea patients will be given full doses of penicillin when first seen and then handled as indicated above. This dismisses the very important obligation to screen for syphilis which may have been acquired simultaneously with the gonorrhea, as well as the obligation to be certain that treatment has been adequate to effect a cure and that the patient has not become reinfected by further exposure to the original contact before she too has received treatment.

The value of a spinal fluid examination in the management of every syphilitic patient is fully appreciated, even though we have never succeeded in securing more than a small percentage of those recommended. This will be made a part of the diagnostic screening when accepted by the patient, but will not be forcefully urged unless there is some strong indication. Failure to secure a spinal fluid examination will not prevent suspending efforts to have the patient return for further observation. Similarly, mothers who have borne children after treatment for syphilis will be advised to have serologic tests on those children but will no longer be repeatedly reminded unless there is reason to believe that treatment for the mother has not been adequate.

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*Chief, Division of Venereal Diseases, Delaware State Board of Health.

This Health Department has prided itself upon being a pioneer in adopting ambulatory treatment for syphilis with delayed absorption forms of penicillin. Schedules adopted have been well received and signally successful, and the state has been spared the expense of maintaining an in-patient service. Yet it is with some trepidation that we face the reality that daily treatment can no longer be guaranteed and that we must resort to newer combinations which, while offered with encouraging preliminary reports, lack the backing of proven results with adequate material. Ordinarily we would welcome the opportunity to participate in a program for the evaluation of such a product, but in this instance we can contribute nothing of statistical merit and will proceed more or less empirically. We propose to add Bicillin to our treatment program but will adjust dosage and number of injections to each individual situation.

For some time patients have been referred to private physicians to complete their treatment when clinics did not meet sufficiently often, or were relatively inaccessible. A satisfactory relationship has been built up with a number of physicians, although some have objected that the fee has been too small. Even that fee cannot be continued and we must explore other ways to meet the problem.

Lack of funds will also find repercussions in the quality of service available from the laboratory, much of whose routine work consists of serologic testing for syphilis, financed by specific grants for VD work. Tests will be made only on fixed schedules so that premarital and similar tests cannot be run as rush jobs, and physicians will at times be inconvenienced by delays of several days before reports are received. Serious consideration must be given the question of continuing two serologic tests as a routine, or whether a single exclusion test will be performed. Physicians in Delaware have become accustomed to following their patients with serial Kahn tests and would be very much handicapped, particularly during a period of transition to some other test. For the present, the aim will be to continue the two tests, but the volume of work will help determine whether this regime can be continued.

It is well-known that the VD patient often presents himself for some other medical problem which may remain in need of attention when his VD problem is met. Often indeed, he has been referred by a physician who has been uncertain as to how much his VD is responsible for his complaints. Many patients who have continued to be served with appraisal for these related conditions, will now be obliged to seek help elsewhere. This will work a real hardship for some persons downstate where there are no hospital clinics to turn to. As always, they will be urged to place themselves under the supervision of their own family physician but regular attention will often be quite beyond the means of many individuals.

This is not to be construed as implying that the clinics offer treatment for ailments out of the field, but that they do aim to be thorough in appraisal of all patients for whom they are responsible.

SUMMARY

Heavy cuts in appropriation for VD control in Delaware will necessitate a greatly altered program:

a. Some clinics will be eliminated, others will operate less frequently.

b. The quest for potential new cases must be relaxed.

c. New treatment schedules must be developed to conform to reduced frequency of clinic sessions.

d. A new relationship with private physicians in the treatment program must be developed.

e. Emergency laboratory service must be curtailed.

f. Many "fringe benefit" services for the VD patient must be eliminated.

RESIDENCY TRAINING PROGRAM OF PUBLIC HEALTH IN DELAWARE

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Dr. Wilson G. Smillie in his book "Preventive Medicine and Public Health" has stated that he has made a distinction between preventive medicine, which he considers a function of the individual in promotion of personal and family health, and public health as a community function. He states further that he may be accused of hair splitting sophistry, since there is an obvious overlapping of these functions with no clear cut distinction between them. He, however, finds his own distinction useful in organizing the instruction of medical students. Further, his idea is that a physician should know the general principles of environmental sanitation but need not be familiar with the details, since he will not be responsible for their administration. He brings out, however, that should a physician wish to enter the public health field as an administrator, he must take special training to prepare himself for such a career. This latter statement will be the theme of this paper. The ideal full time health officer for city, county, or state should fulfill the following qualifications: He should be a graduate of an approved school of medicine, following with one or more years of approved internship. He should then avail himself of the opportunity of a post graduate course in an approved school of public health with a curriculum leading to a degree of master of public health. Lastly, he should apply for residency training in a state approved for this purpose. Inasmuch as there are always exceptions to rules, there exist many health officers who, due to years of training and experience in all phases of public health, are quite able to meet the requirements of the American Board of Preventive Medicine and Public Health.

A few years ago the American Board of Preventive Medicine and Public Health inaugurated a residency training program for qualified applicants who desire certification in preventive medicine and public health by this Board.

The definition of the term residency as used in the Report and Recommendation of Nationwide Working Conference on Public Health held at Chapel Hill, North Carolina, December 3-5, 1951 is as follows:

An approved residency for the physician in preventive medicine and public health is that portion of advanced training in the specialty which provides a planned and supervised field experience in the practice of public health in a health department duly accredited for such training.

While the basic principles of a residency in preventive medicine and public health are the same as those of residencies in the clinical specialties, there are important differences in the manner of their affiliation. First, the agency in which the training is given is not a closely integrated institution, but a field agency whose activities extend to the furthest approaches of the community.

Second—In clinical residencies the patient is an individual and the important need is to expand the resident's knowledge and give experience in newer techniques to develop necessary skills to all the specific problems in the specialty.

Quite opposite to this, in a public health residency it is necessary for one to develop a new concept. The trainee must realize that the entire community is the patient for which the health department is responsible. He must acquire new skills for diagnosis and treatment of the total health needs of the community. The requirements include an approved residency (after internship) of at least two years of supervised field experience in general public health practice which provides planned instruction, observation, and active participation in a comprehensive organized public health program. It is provided, however, that one year of such period may be satisfied by an approved clinical residency in a field directly related to public health.

In other situations, the second year of supervised field experience may be satisfied by a responsible service as a full time assistant to a health commissioner or program director of a health unit approved for such purpose, or as health officer of a county health department, city health department, or state health district in a state wherein the State Health Department is the agency approved for the residency training program.

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At the present time there are twelve or more states in the nation which have been approved by the Council of Medical Education and Hospitals of the American Medical Association. The State Board of Health of Delaware made application to set up a residency training program. The application was approved in the spring of 1951 by the Council and the American Board of Preventive Medicine and Public Health.

Delaware, through the State Board of Health, was chosen to conduct such a program, for the fact that it has well established local health jurisdictions within which the field training can be carried out. Also, the staff personnel are qualified, by experience and ability in public health practices and teaching, to assume the responsibilities for the standards, goals, conduct, and supervision of a residency training program. At the present time Kent County and New Castle County, exclusive of the City of Wilmington, have been designated as the selected areas.

General Statement Of Residency Training

The curriculum for the residency training program in Delaware is developed in such a way that 75% of the entire study will be spent in a local training area. 25% will be spent at the state level. The content of the course as outlined, with a specific number of weeks in various fields, does not mean that the exact number of weeks will be spent consecutively in the study of any one particular field. However, the work will be integrated in such a way that the total time spent will approximate the time entered in the schedule.

As far as orientation is concerned, it was felt that a big dose of this at the beginning was undesirable. Two to four weeks of orientation becomes extremely confusing to the trainee. It is the Board of Health's opinion that orientation in the various subjects will come with progress in the course, and that only a few days of preliminary explanation, in which the various services are described and the agencies with which we work are outlined, will be sufficient for the trainee to begin actual work in the division in which he will learn more fully the details of inter-division and intra-agency cooperation.

Present Curriculum—At Local Level

1. **General Administration (4 weeks).** The course will include all aspects of local health administration such as program planning, the conducting of programs, participation in local community organization, activity in physician and public relationship, budget planning and financing of local health units, administrative records and reports, local records, family folders, state reports, periodic reports. Annual reports and forms used for both administrative and clinical activities will be studied, also cooperative relationships with local officials and voluntary health and welfare agencies. Hospital and Health Center Construction Act and its application on local level will be studied. Administration of services will be taken up in general by the health officer and in particular by the persons responsible for individual services. The trainee will take part in weekly local and monthly state staff meetings.

2. **Maternal And Child Health (8 weeks).** Trainee observation and participation in Well Baby Conferences (immunizations, vaccination, physical examinations and infant feeding). Conduct pre-natal and post-natal clinics and related activities. Inspection of nursing homes and hospitals. Midwife instruction and licensing. School hygiene, conduct physical examination of school children (appointment system, parents present). Discuss child's condition with parent and make necessary recommendations, follow-up activities with public health nurse. Organize and participate in classes for expectant parents. The observation of prophylactic, corrective and preventive measures carried out in dental hygiene clinics. This includes technics of sodium fluoride application. Study the local cause of maternal and infant mortality, particularly in conjunction with the survey of State Medical Society. Participate in premature infant program.

3. **Preventable Diseases (8 weeks).** Epidemiological investigations, maintaining of carrier registers, tuberculosis registers, special immunization clinics, tuberculosis clinics for diagnosis, case finding and ambulatory treatment, arrangements for hospitalization

of tuberculosis and other communicable disease cases, the actual operation of the mobile x-ray detection clinic. Study the cases and reading of films. Learn how to use Fluoroscope. Participate in cancer detection clinics and heart disease control activities, venereal disease case finding, venereal disease records and reports. Trainee will also investigate contacts of venereal disease. Follow-up of case and actual clinical treatment will be included in this course. Consultant services to physicians.

4. **Public Health Nursing (8 weeks).** To participate in weekly staff conferences in which local nursing problems, nurse personnel, etc. are discussed. Opportunity will be afforded trainee to participate in actual case work with a qualified public health nurse, in the field, office and clinic. The relationship of the local health officer to the public health nurse and to workers in non-official health agencies will be demonstrated. The matter of records, reports, and forms utilized by nurses will be carefully studied. The benefits of the generalized nursing service will be given attention. Will study and observe the duties and functions of a public health nurse and determine how nurse's time is allocated to the various services rendered.

5. **Sanitary Engineering (8 weeks).** Participation in general sanitation, including food, milk, water, sewage and industrial waste disposal and water pollution control. Consultations and conferences with State Director of Sanitary Engineering. Trainees will participate in the inspection of eating and drinking establishments, pasteurizing plants, dairy barns, milk processing including frozen dessert plants, bottling plants, public school sanitary and eating facilities, water sewage systems and shell fish facilities, institutional and industrial plant sanitation, canneries and slaughter houses, housing conditions, rodent, vermin and insect control. Trainees will study the administration of a general environmental sanitation program and relations with state and Federal health agencies. The educational ground work necessary for the securing of laws, rules, and regulations in communities will be stressed. Trainees will study and participate in the laboratory and field tests used in general environmental sanitation programs. Plans for new community improvements will be made and studied; this will include sewage disposal systems, water purification plants, etc. Trainees will study and participate in the keeping of adequate records in all phases of a sanitation program. Methods of planning and conducting food handling schools and programs for other phases of a sanitation program will be studied and participated in by the trainees. Special studies and field trips will include industrial plant sanitation. The industrial sections of the E. I. du Pont de Nemours, General Motors Company, and other companies, will be used. Poultry processing and food canning and handling plants will be inspected, studied and reported upon. Methods of correction of violations will be practiced.

6. **Vital Statistics (1 week).** The trainee will be assigned to work with the local registrar in registering births, deaths and marriages, and will carry out the provisions of the state regulations concerning handling and transportation of the dead. The registration of a birth and death will be followed from the originator of the record through the local registrar to the state and national levels. Trainee will check for promptness of reporting, correction of data on vital records. This will include the checking of diagnoses of coroners on dubious cases.

7. **Public Health Education (1 week).** The trainee, under general direction of the health officer, plans, organizes, supervises, and carries out a program of public health education including talks to groups of citizens. Will participate in the local in-service training program. Trainee will cooperate with the State Council of Welfare Agencies and local councils and other organizations interested in the general health education of the public. The trainee will be required to attend meetings and conferences relating specifically to health education programs.

Proposed Curriculum—At State Level

1. **General Administration (1 week).** Brief introduction to public health on state and national levels. Relationships with national health agencies, description of the state health agency, its divisions and various functions. Assignment of trainee to health officer's desk to observe and participate in the routine daily duties. Studies of the poli-

cies of the department and relationship of the department to other state agencies. Will participate in the direction and supervision of local health units to assure adequate health programs are being furnished. Practice will be given in the solution of fiscal problems including budget planning and securing of appropriations.

2. **Maternal Child Health and Crippled Children's Services (2 weeks).** The trainee will study and participate in the administration of all phases of these services and will assist the director in the preparation of the surveys, weekly, monthly and annual reports. Records will be maintained personally by the trainee. He will observe and participate in orthopedic, cerebral palsy, hard-of-hearing, speech defects, and cardiac diagnostic clinics. He will participate in the crippled children's hospitalization program at the A. I. duPont Institute and at Governor Bacon Health Center. Problems of nutrition relating to all these services will be reviewed and studied. The trainee will be given an opportunity to participate in program preparation. He will be expected to prepare material on nutrition and make field visits with the state nutritionist.

3. **Preventable Disease Control, including Tuberculosis and Venereal Diseases, so-called Degenerative Diseases (2 weeks).** Brief review of the development of these programs, particularly those relating to the degenerative diseases. Study of the value of each program and how they may be coordinated. Reference will be made to multiphasic examinations. Discussions of laws and regulations pertaining to communicable and other diseases. Study of the past and present trends in the leading causes of death. Trainee will visit several state institutions, i.e. tuberculosis sanitoria, the Delaware State Hospital (for the mentally ill), the Delaware Colony Training School (for mentally retarded children), etc.

4. **Public Health Nursing (1 week).** Trainee will study and participate in the planning of nursing activities, and the administration of the nursing program. The importance of in-service education and nursing records and forms will be further subjects of study. The coordination and integration of state public health nurses' work with the school nurse, VNA and industrial nurse will be stressed. The part that the director of Public Health Nursing and the special nursing consultants play in relation to the local Public Health Nursing Supervisor and nurses will also receive attention.

5. **Health Education (2 weeks).** Trainee will assist in planning, developing and integrating programs on a state-wide basis. He will attend health conferences and institutes; give talks at medical meetings, PTA's, service groups, etc. Also will be given the opportunity to do radio and television work. He will prepare releases for the press; review and criticize health films; prepare and judge exhibits and assist in the preparation of programs for in-service education.

6. **Sanitary Engineering (1 week).** The trainee will assist in reviewing and approving plans for installation of sewage disposal and water supply systems. He will review briefly the laws and regulations pertaining to water supply and sewage disposal. He will accompany an engineer or plumbing inspector or both on such inspections. He will be assigned to the water pollution commission for study of the problem of stream pollution. He will observe and participate in the taking of samples of streams and follow the analysis through to its termination. He will consult with the director and assist him in determining the most feasible solution of the problem concerned.

7. **Laboratory Service (1 week).** A study of laboratory facilities available to the physician and various methods of collecting specimens and transportation to the laboratory. He will observe and assist the director in serological, bacteriological, agglutination, chemical, cytological and other examinations; also culture work and animal inoculations. There will be field visits to hospitals and private laboratories to inspect same for approval.

8. **Statistics (1½ weeks).** The trainee will acquaint himself with the methods of registration of births, deaths, marriages and divorces and will review the laws relating to same. He will study the method of coding and filing after having checked the certificate for errors. The permanent filing of registered certificates will be observed and studied; also issuance of certified copies of

births, deaths and other registered certificates. The problem of delayed registration of birth certificates will also receive attention. Methods for determining completeness of registration will be demonstrated. He will participate in the collection, tabulation, analysis and interpretation of statistics relating to public health programs.

On the successful completion of the above course of training plus the requisite qualifications and experience, a candidate is eligible to take the examination for certification by the American Board of Preventive Medicine and Public Health.

Grateful acknowledgement is made to the five members composing the Advisory Committee in aiding in the development of the training program. Those serving at the present time are outstanding in the respective professional fields. They are Dr. Ernest Stebbins, Director of the School of Hygiene and Public Health, Johns Hopkins University; Dr. Alfred R. Shands, Jr., Medical Director, A. I. duPont Institute; Dr. W. O. Penrose, Dean of School of Education, University of Delaware; Dr. W. Edwin Bird, Executive Secretary, Medical Society of Delaware; and Lammot duPont, Jr., Chairman of the Delaware Chapter, American Red Cross. Acknowledgement of appreciation is also made to various employees of the State Board of Health in aiding in the preparation of the program.

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THE PROBLEM OF "FRINGE AREAS"

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Shelter is one of the basic human needs. "Where shall we live?" is the first question asked by every new family in a community. With satisfactory building areas within town or city limits at a premium, the modern house hunter has gone beyond these boundaries to build his "Castle". The automobile and good roads have greatly influenced this change in the housing pattern. This has created the "suburban fringe area" with its problems of sanitary facilities such as water supply, sewerage and the disposal of trash and garbage.

In Delaware this trend was evident in the 1950 population statistics. Between 1940 and 1950 the population of New Castle County increased 39,317 people. During the same decade Wilmington lost 2,148 inhabitants. Since 1950 this pattern seems to have continued, as is evidenced by the continuous growth of unincorporated housing developments throughout the upper third of New Castle County. The industrial development of the Newark area has given an added impetus to this boom. In Kent County the considerable expansion of the Dover Air Force Base has started a smaller building boom.

Such expansion creates many problems, particularly if it is poorly planned and not controlled by satisfactory regulations. Among the sanitary problems which may arise are nuisance conditions caused by overflowing cesspools or the indiscriminate dumping of refuse; inadequate surface drainage; low water pressures; improperly located or constructed wells; and polluted streams.

Delaware has been fortunate in that there have been several factors which have been of assistance in New Castle County, the area of greatest expansion. These are the New Castle County Regional Planning Commission, the County Plumbing Code, the law enabling the establishment of sanitary districts, and the Water Pollution Control Act. To these has recently been added the Zoning Commission.

All plats of developments in New Castle County which propose the dedication of the streets as public property must be approved by the Planning Commission before the plat is recorded. The Commission in turn requires the approval of the State Board of Health, the State Highway Commission, and the County Engineer. This leads to an orderly development of the unincorporated areas of the county. A more comprehensive plan of development will be available with the completion of the zoning map of the county.

In Kent County the plumbing code, brought about by a legislative act of 1949, has been of assistance in improving the sanitary facilities of new homes. There is no plumbing code in Sussex County. There are also no regulations requiring comprehensive planning of proposed housing developments in Kent and Sussex Counties. Therefore, it is possible for a developer to choose swampy land or land in tight clay soils, divide it into small lots and build houses provided with individual wells and waste disposal facilities. Such facilities crowded together on inadequate area are a definite health hazard.

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With these problems in mind an attempt was made during the 1953 legislative session to secure necessary regulations and the personnel to put them into effect. A proposed act regulating housing developments throughout the state was submitted but was unsuccessful. The need for additional personnel to be used in sanitation activities and in the follow-up of pollution control activities was stressed in the presentation of the budget. Although not sponsored by the State Board of Health, a bill to establish zoning commissions in Kent and Sussex County was also not successful. One measure which may be of considerable assistance in the financing of water and sewerage facilities for both unincorporated housing developments and for established towns is Senate Bill 372 which was approved by Governor Boggs on July 15, 1953. This bill permits the establishing of water and sewer authorities. Its provisions are described in another article in THE JOURNAL.

From the foregoing it is evident that there are many needs to be met. The state-wide control of housing developments should be established by regulations. This would provide for the adequate planning, proper location, and uniform construction of all proposed developments. Such regulations would not have the affect which could be obtained with a good zoning law. They would do much to illustrate the advantage of zoning and would supplement such requirements. In addition to regulations controlling housing development an adequate staff is necessary to make certain that they are carried out. The State Board of Health is presently engaged in a search for additional personnel who will assume some of these duties. This is a much-needed step toward the solution of this wide-spread problem resulting from the migration of city dwellers. We shall attempt to implement this first step with adequate regulations giving state-wide control of these suburban areas.

FINANCING MUNICIPAL WASTE TREATMENT

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The Delaware Water Pollution Commission was created with the expressed purpose of safeguarding the quality of state waters against pollution in such waters and controlling any pollution existing there at the time of the adoption of the Delaware Water Pollution Control Act of 1949.

There are two basic phases to our water pollution abatement program: investigative or survey period and follow-up phase. The investigative portion constitutes a detailed study of the various contributing wastes within a specific drainage basin; and, based upon the findings and best water usage, recommendations are made to improve the existing conditions wherever needed. All efforts expended in an initial study phase would be fruitless if there were no adequate follow-up. Follow-up constitutes fulfilling the recommendations by either waste prevention practices and/or waste treatment facilities. Construction cannot be realized without an expenditure of funds; consequently, the problem of financing will always be an important issue of the follow-up program.

Many communities are now required to furnish more and more facilities for an increasing urban population. Rapid development in the state of Delaware has also resulted in a tremendous number of small community developments in rural areas. Serious problems of finance will continually arise for the building and maintaining of vitally needed water and sewer services. The burden, in the past, had often rested heavily upon property taxation. This source of revenue has been greatly overloaded, and it had become imperative to seek the needed revenue elsewhere. Therefore, when existing services had been necessarily expanded or new services provided, municipalities have been forced to levy a special service charge to finance the improvement and its subsequent operation and maintenance.

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There is a considerable diversity in the charters and enabling acts, many of which are not clear in their language relating to the organizing, particularly the financing provision, and are often limited and restrictive in their wording. Often cities, which have had difficulty in getting a favorable opinion on revenue issues because of defect in existing laws and necessary statutory authority, find the remedy in presenting their needs at their earliest forthcoming legislative session.

The prevailing method of organizing for water and sewage works include the following:

(a) A municipality organized with power to finance and construct water and sewage works, within its own limits, for its own population and for adjacent areas by contract.

(b) Municipalities and some unincorporated lands, favorably located, have been organized and often referred to as water districts, sanitary districts, or authorities.

(c) Private water and sewage companies have been organized to finance, construct, and operate water and sewage works for single municipalities and metropolitan areas.

In the commonwealth of Pennsylvania a good financing program has proven to be the mainspring for increased pollution abatement. Sewer authority legislation passed at the Maryland 1951 legislative session will expedite progress in the construction of needed waste treatment facilities. In the state of Delaware only one of the three counties has the authority to create sanitary districts. New Castle County has utilized this authority most ably, as exemplified by the present construction of the Wilmington-New Castle County trunk sewer project. Through the continued efforts of the Mayors' Association, a bill was presented and passed by the state legislature which provides an amendment to Title 16, Delaware Code 1953, entitled "Health and Safety" by adding a chapter thereto relating to the establishment of water and/or sewer authorities. This amendment is deemed to be an additional and alternative method for the doing of the things authorized thereby and should be regarded as supplemental and additional to powers conferred by other laws. This law will add a means of raising vitally needed funds for the above specified purpose. It would be an asset to the solving of certain financial problems in Kent and Sussex Counties.

The law is rather complete. It contains the important considerations which were emphasized in a committee report of the American Society of Civil Engineers. It provides for the creation of sanitary districts by local petition followed by a general election. It recommends that the administrative board should be composed of members elected locally. The enabling acts include a broad general grant of powers rather than specific direction, subject to provisions imposed by the state Constitution and later court decisions establishing the rights of a sanitary district, as regards methods of financing. The authorities possess the usual basic powers, such as making of rules and regulations; join with other districts and municipalities and exercise of common powers; contract with others to provide or receive sewage disposal service; make and apply rates of charge for sewage disposal service and force penalties for nonpayment.

The law "constitutes full and complete authority, without regard to provisions of any other law for the doing of the Acts and the things herein authorized, and shall be liberally construed to effect the purposes hereof; provided, however, nothing herein contained shall be taken as restricting any control which the State Board of Health, State Highway Department, and the Water Pollution Commission are empowered to exercise over or within any authority."

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Wilmington, Del.
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Vol. 25 September, 1953 No. 9

Lowering the Standards

From the annual report of the Dean of the Faculty of Medicine of Columbia University for the academic year ended June 30, 1953, we learn for the first time that the state of New York has lowered the requirements for medical licensure in that state drastically. We could not possibly agree with the action taken by the state of New York, and are proud of the fact that little Delaware has always maintained a big standard—meaning the very highest. This New York Act will have its repercussions all over these United States; let us hope that none of the other states will follow New York in this most undesirable course. We can do no better than to quote Dean Rappleye's report verbatim:

The Brydges Act

At the present time there are approximately 17,000 approved internships and 3,940 approved residencies in the state of New York. In view of the fact that about one-sixth of the approved internships and approximately one-fifth of all of the residencies in the United States are in New York State, a recent action by its legislature is of national as well as local significance. As of July 1, 1953, the educational requirements for internship, which have been a part of the present state education law for many years although not enforced, will be repealed. A new law will permit all hospitals to appoint interns without regard to their educational qualifications, and many hospitals to appoint residents under the same conditions. The state intends to solve the problems of staffing the hospitals by abdicating essential standards which it had adopted in the past. Some of the extravagant statements and dire predictions by the advocates of legal recognition of lower standards merely reflect their unwillingness or inability to come to grips with this vital question. There are approximately 1,000 graduates from unapproved medical schools now serving in the hospitals of the State of New York. The employment of hospital staffs which do not meet the professional requirements recognized throughout the country, and even perhaps by the courts of the State, may introduce a number of interesting and serious consequences to the hospitals that employ such staffs should those institutions be sued for malpractice or damages.

Those who have advocated and secured the passage of legislation specifically repealing the qualifications for internship and weakening those of residency training have done so on the allegation that by so doing the hospitals of the State would be made available for the education of foreign physicians. Reference is made to the desire to "equalize the education of the foreign graduate" and capitalize on his broad interest in "postgraduate medical education." It is difficult, however, to understand how it is possible to compensate for the inadequate preparation of many of these graduates from medical schools which are below acceptable standard by placing them in "postgraduate training" in hospitals that provide practically no training program.

It is all too obvious that the device is essentially a method of securing house staffs for hospitals that are not otherwise able to attract graduates of approved schools. It is equally clear that there is no intention to conduct these internships on an educational basis. Some other term should be used for the employment of these individuals than "interns" or "residents".

In the United States the internship has come to be accepted universally as an essential part of the preparation of the physician. It is requirement for licensure in no less than twenty-seven states and most territories. The residency plan has been accepted everywhere as the basis of true graduate medical training. To use these two important designations, which are accepted generally as a part of the educational pattern of American medicine, as a lure for the recruitment of large numbers of untrained or in incompetent individuals is likely to discredit the entire effort to maintain professional standards in this country.

Those who sponsored the legislation in New York maintain that the standards are not lowered. It seems to be evident now that the standards are not reduced they are merely eliminated. A recent announcement of the new program states that it will permit "interns who are generally under close supervision to come from any source." Nothing could be more misleading in many instances than to speak of "close supervision." The important phrase is "from any source."

Serious damage may be done to international good will through those who come here with the impression that they will obtain graduate medical training, which, when under the proper auspices in the country is unequaled in the world. Fortunately, for international relations, very few of the foreign physicians intend to return to their own countries. Hence, the false and pious claims of educating them in hospitals which offer no instructional plan will not have a serious effect on international relations.

STATE BOARD OF HEALTH NUMBER

Once again, for the 24th year, this issue of THE JOURNAL presents the activities of the Delaware State Board of Health. This feature is one not emulated by many of the other state medical journals, but we find it profitable to publish it because it benefits the department, the profession, and the public. The material this year maintains the high standard that has been set forth these many years.

THE JOURNAL is happy to extend to Dr. Floyd I. Hudson, the Executive Secretary of the Board of Health, and to all his collaborators, its thanks for the material they have contributed.

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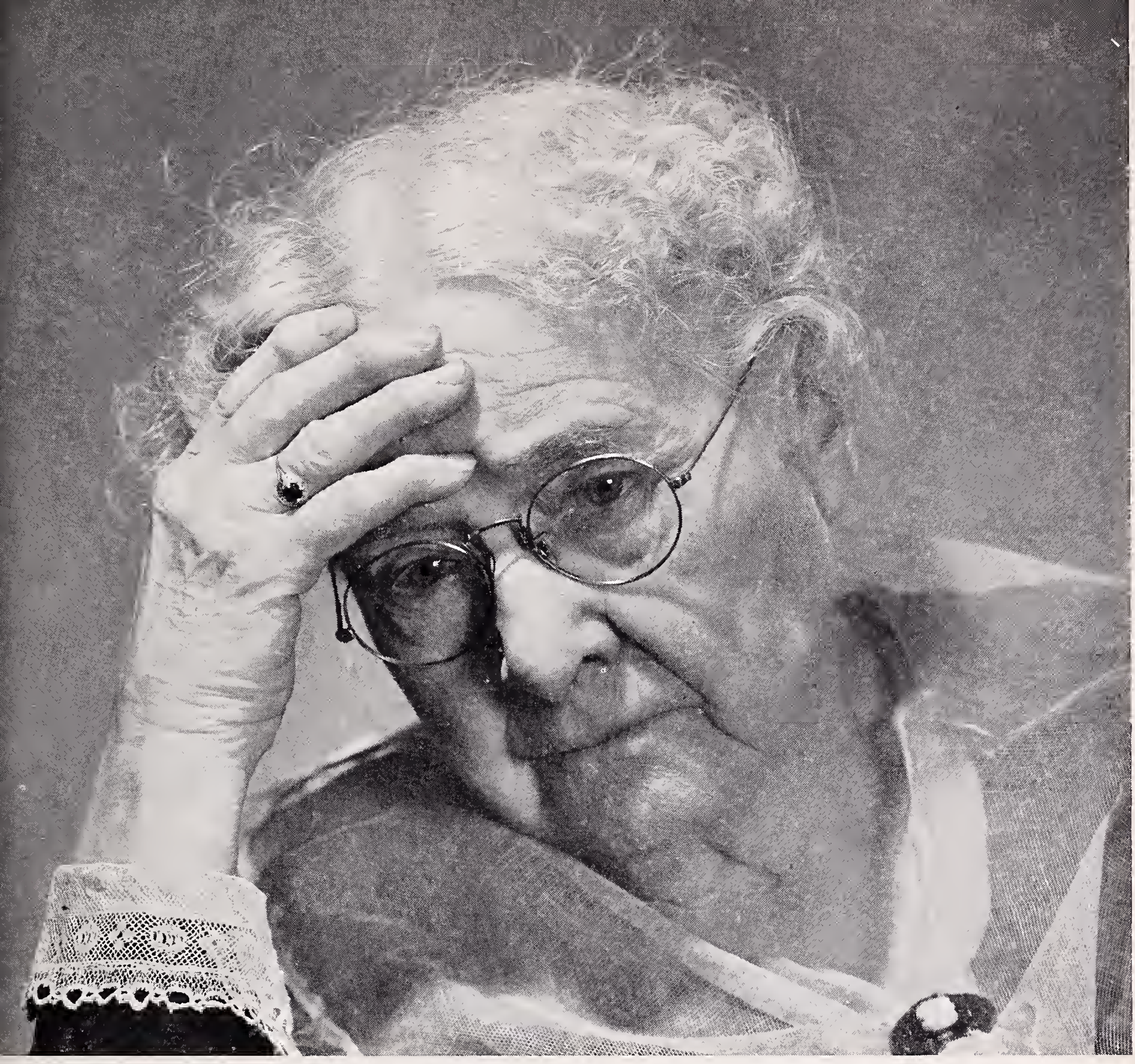

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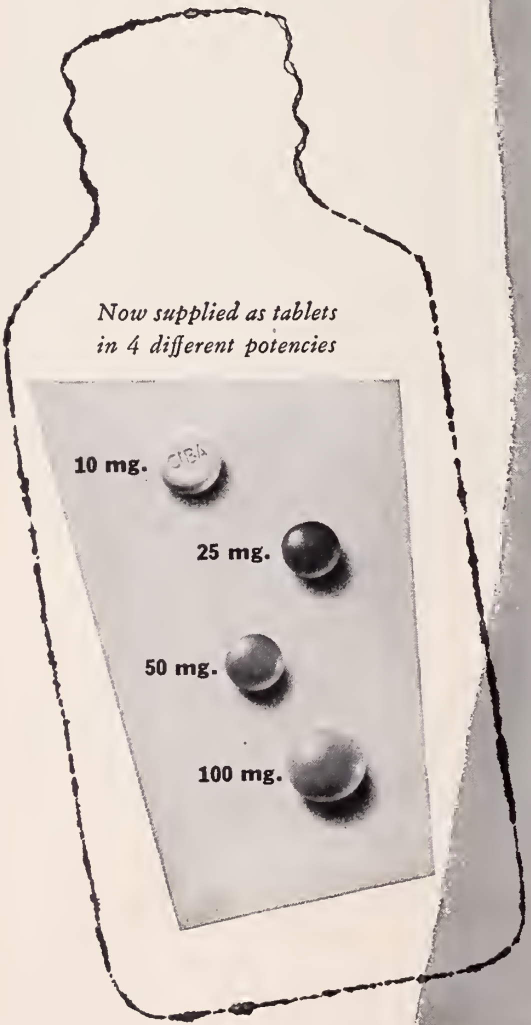

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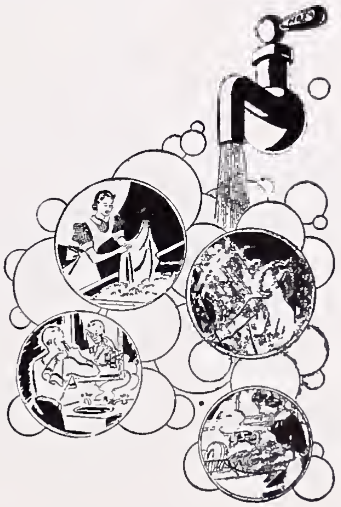

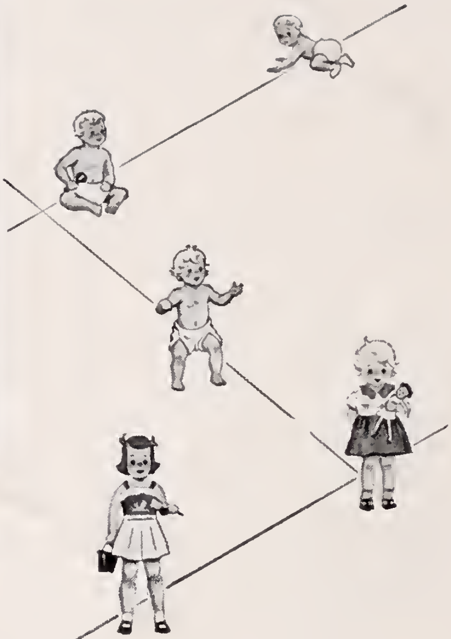

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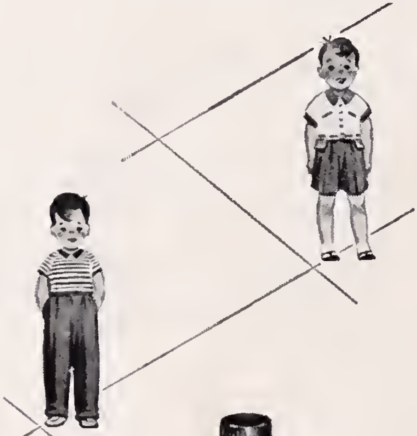

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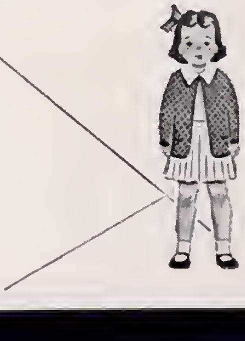

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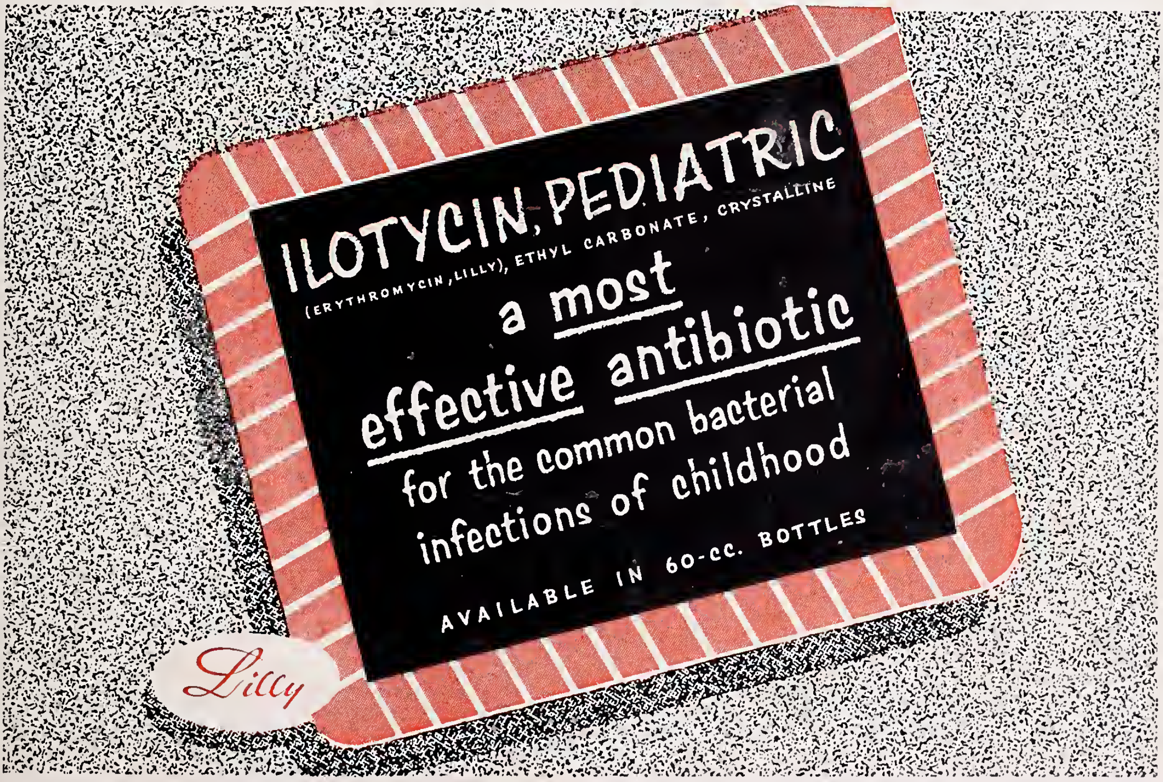
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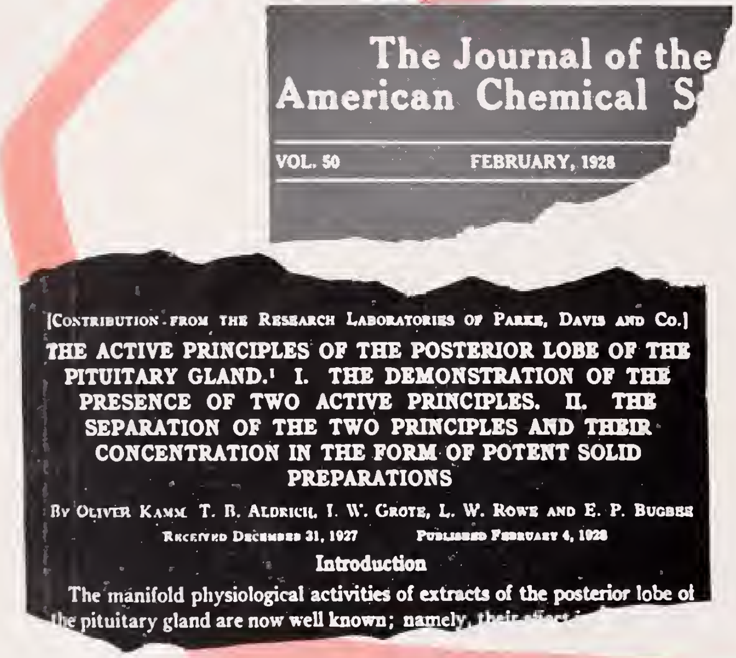

The Journal of the
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VOL. 50 FEBRUARY, 1928

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THE ACTIVE PRINCIPLES OF THE POSTERIOR LOBE OF THE PITUITARY GLAND.[1] I. THE DEMONSTRATION OF THE PRESENCE OF TWO ACTIVE PRINCIPLES. II. THE SEPARATION OF THE TWO PRINCIPLES AND THEIR CONCENTRATION IN THE FORM OF POTENT SOLID PREPARATIONS

BY OLIVER KAMM, T. B. ALDRICH, I. W. GROTE, L. W. ROWE AND E. P. BUGBEE

RECEIVED DECEMBER 31, 1927 PUBLISHED FEBRUARY 4, 1928

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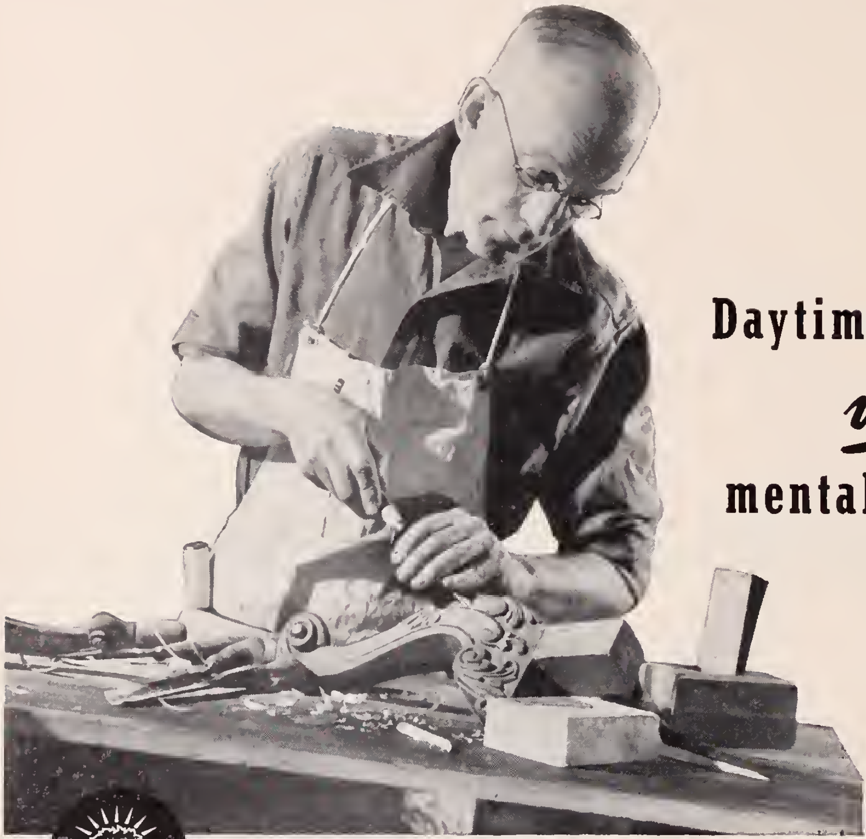

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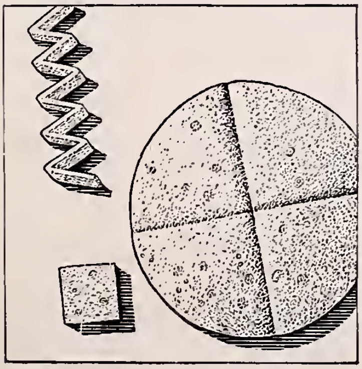

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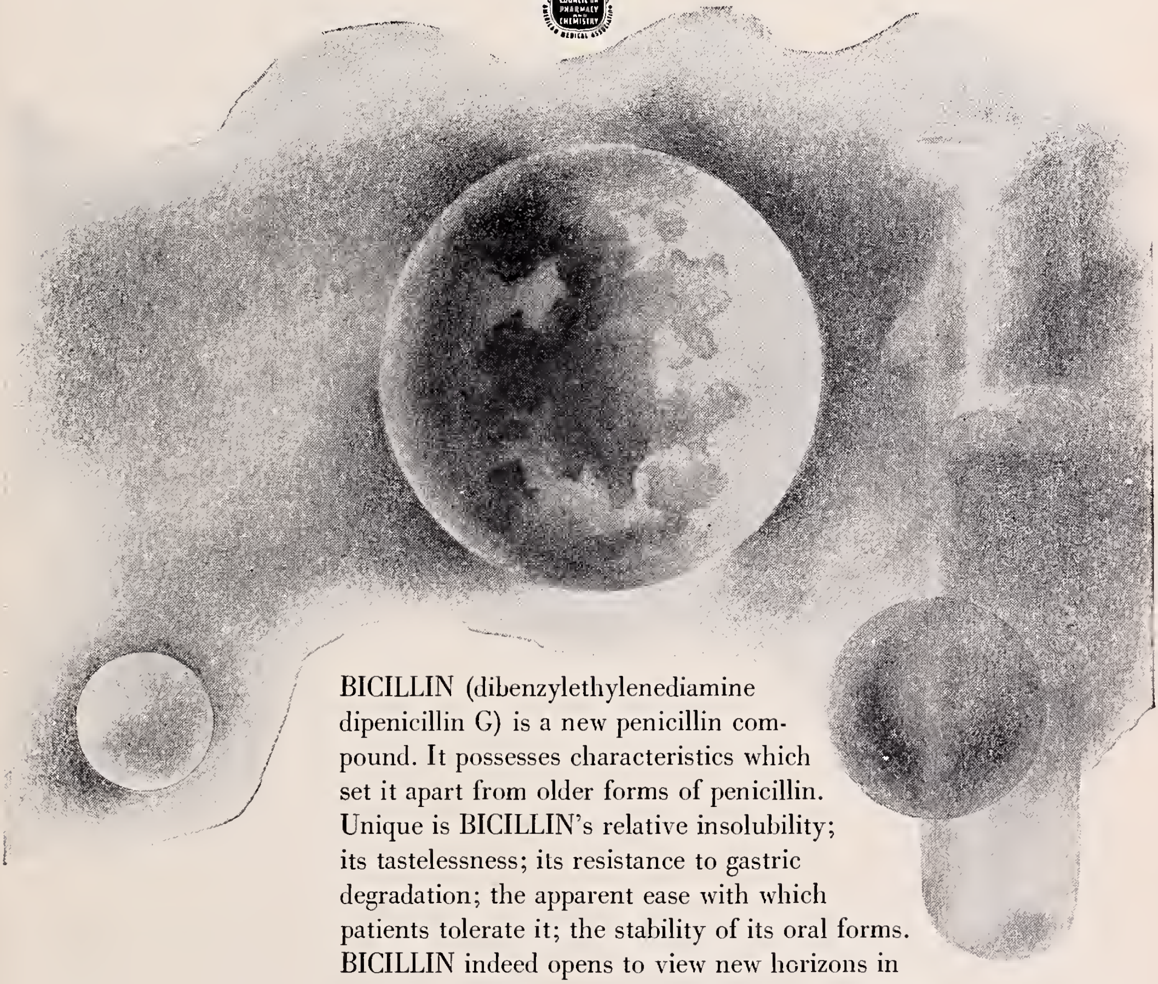

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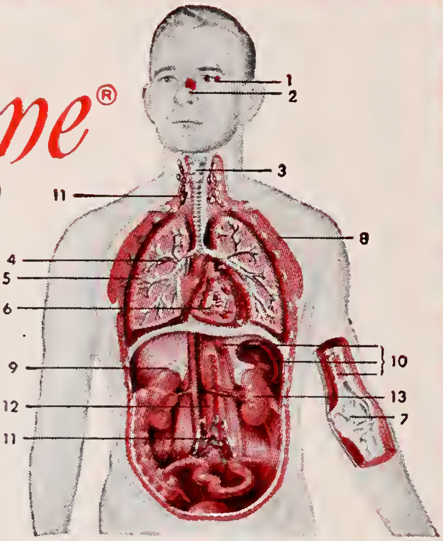

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1. EYE—Inflammatory eye disease. **2. NOSE**—Intractable hay fever. **3. LARYNX**—Laryngeal edema (allergic). **4. BRONCHI**—Intractable bronchial asthma. **5. LUNG**—Sarcoidosis. **6. HEART**—Acute rheumatic fever with carditis. **7. BONES, JOINTS, AND BURSAE**—Osteoarthritis; Rheumatoid arthritis; Rheumatoid spondylitis; Acute gouty arthritis; Still's disease; Psoriatic arthritis; Bursitis. **8. SKIN AND CONNECTIVE TISSUE**—Pemphigus; Disseminated lupus erythematosus; Scleroderma (early); Dermatomyositis; Atopic dermatitis; Exfoliative dermatitis; Dermatitis venenata (*e.g.*, poison ivy); Dermatitis medicamentosa. **9. ADRENAL GLAND**—Congenital adrenal hyperplasia; Addison's disease; Following adrenalectomy for hypertension, Cushing's syndrome, and neoplastic diseases. **10. BLOOD, BONE, AND MARROW**—Allergic purpura; Acute leukemia* (lymphocytic or granulocytic); Chronic lymphatic leukemia.* **11. LYMPH NODES**—Lymphosarcoma;* Hodgkin's disease.* **12. ARTERIES AND CONNECTIVE TISSUE**—Periarteritis nodosa (early). **13. KIDNEY**—Nephrotic syndrome, without uremia (to induce withdrawal diuresis). **14. VARIOUS TISSUES**—Angioneurotic edema; Serum sickness; Sarcoidosis; Drug sensitization; Waterhouse-Friderichsen syndrome.

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*Perloff, W. H.: Am. J. Obst. & Gynec. *58*:684 (Oct.) 1949.

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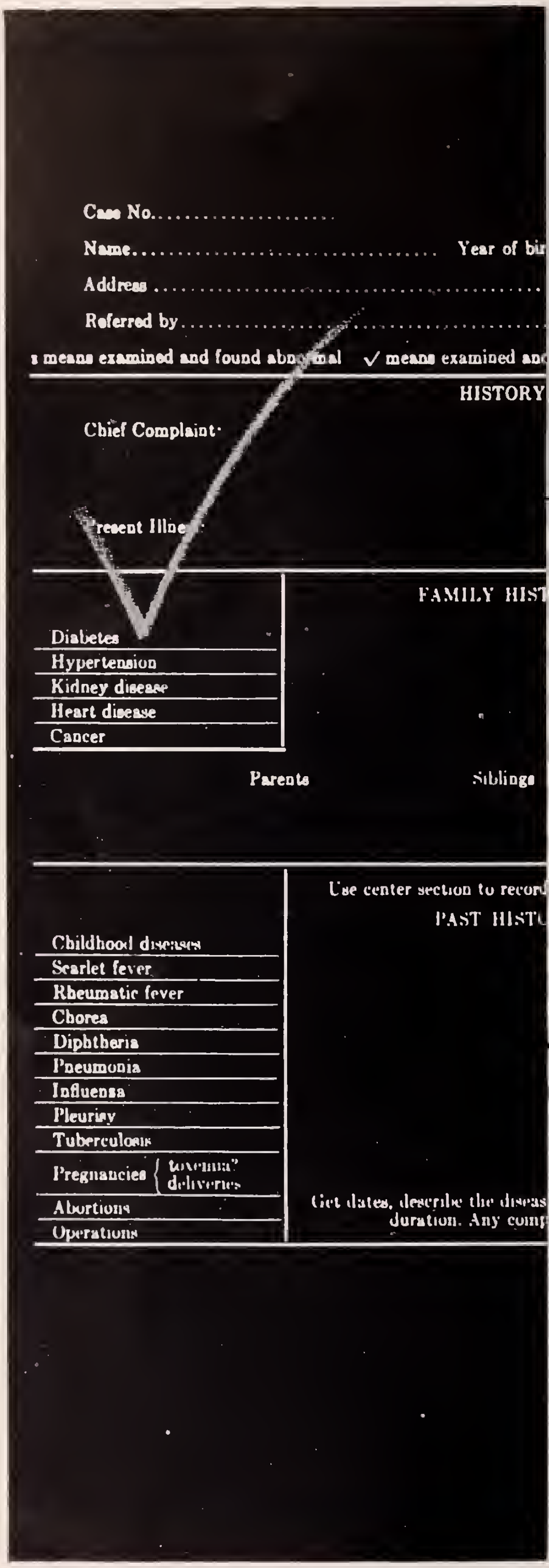

Case No. ....

Name. .... Year of bir

Address ....

Referred by ....

x means examined and found abnormal ✓ means examined anc

HISTORY

Chief Complaint·

Present Illness·

FAMILY HIST

Diabetes

Hypertension

Kidney disease

Heart disease

Cancer

Parents Siblings

Use center section to recor

PAST HIST

Childhood diseases

Scarlet fever

Rheumatic fever

Chorea

Diphtheria

Pneumonia

Influenza

Pleurisy

Tuberculosis

Pregnancies { toxemia? deliveries

Abortions

Operations

Get dates, describe the diseas duration. Any comp

when the history hints at diabetes

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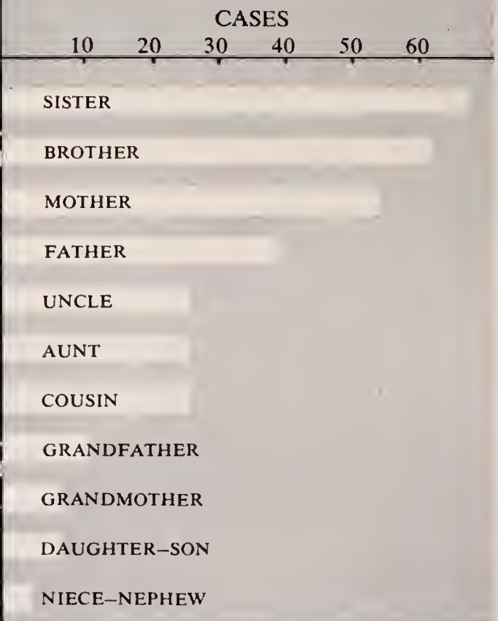
for urine-sugar analysis



The Diabetic Relatives of 265 Diabetics[1]

In view of "...the very high incidence of...unsuspected cases among the blood relatives of diabetic patients,"[2] urine-sugar testing of all such individuals should be routine and frequent.

1. Barach, J. H.: Diabetes and Its Treatment, New York, Oxford University Press, 1949, p. 38.
2. Allen, F. M.: Diabetes Mellitus, in Piersol, G. M., and Bortz, E. L.: Cyclopedia of Medicine, Surgery, Specialties, Philadelphia, F. A. Davis Company, 1951, vol. 4, p. 505.

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1. Ferguson, C., and Miller, C. D.: J. Urol. *67*:762 (May) 1952.
2. Trafton, H. M., and Lind, H. E.: Ibid. *69*:315 (Feb.) 1953.
3. Blahey, P. R.: Canad. M. A. J. *66*:151 (Feb.) 1952.

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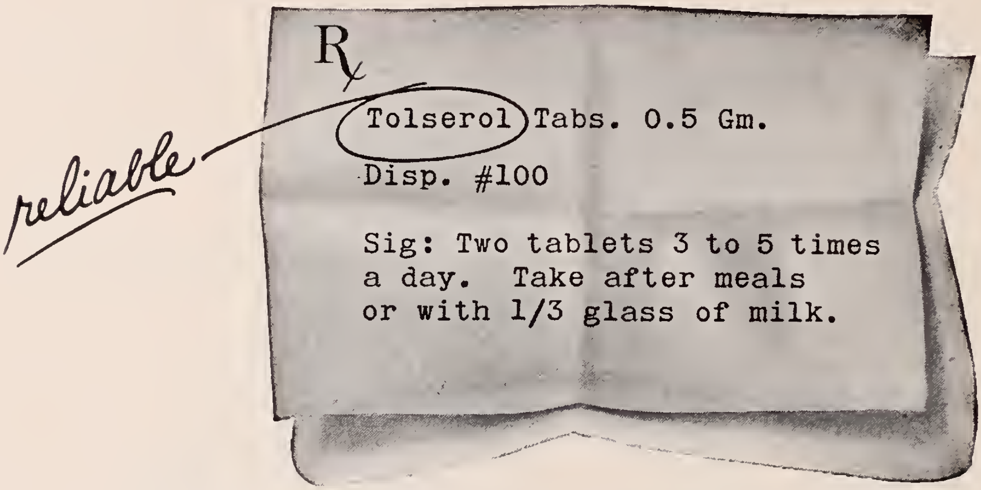

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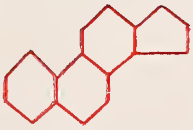

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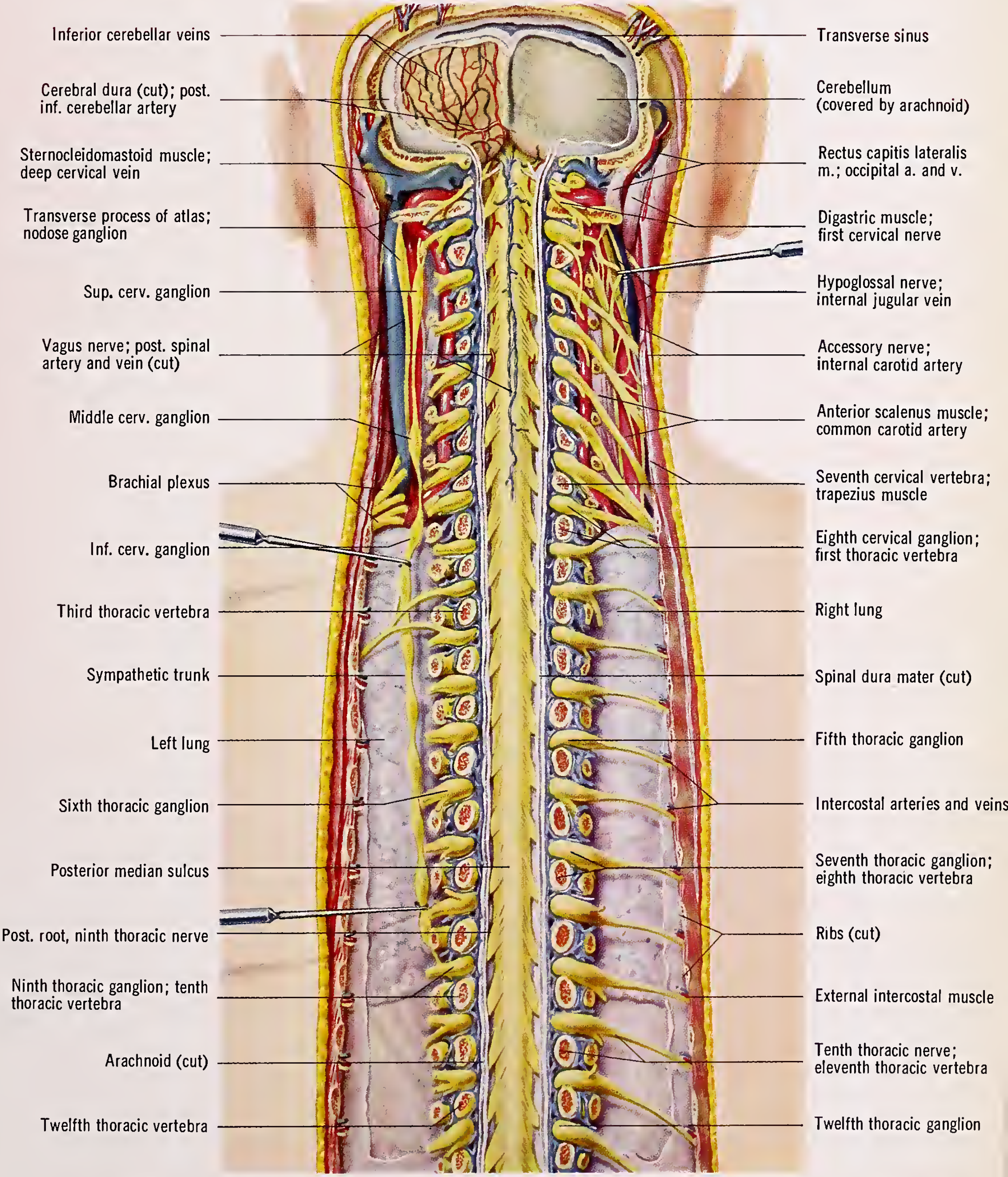
Inferior cerebellar veins
Cerebral dura (cut); post. inf. cerebellar artery
Sternocleidomastoid muscle; deep cervical vein
Transverse process of atlas; nodose ganglion
Sup. cerv. ganglion
Vagus nerve; post. spinal artery and vein (cut)
Middle cerv. ganglion
Brachial plexus
Inf. cerv. ganglion
Third thoracic vertebra
Sympathetic trunk
Left lung
Sixth thoracic ganglion
Posterior median sulcus
Post. root, ninth thoracic nerve
Ninth thoracic ganglion; tenth thoracic vertebra
Arachnoid (cut)
Twelfth thoracic vertebra
Transverse sinus
Cerebellum (covered by arachnoid)
Rectus capitis lateralis m.; occipital a. and v.
Digastric muscle; first cervical nerve
Hypoglossal nerve; internal jugular vein
Accessory nerve; internal carotid artery
Anterior scalenus muscle; common carotid artery
Seventh cervical vertebra; trapezius muscle
Eighth cervical ganglion; first thoracic vertebra
Right lung
Spinal dura mater (cut)
Fifth thoracic ganglion
Intercostal arteries and veins
Seventh thoracic ganglion; eighth thoracic vertebra
Ribs (cut)
External intercostal muscle
Tenth thoracic nerve; eleventh thoracic vertebra
Twelfth thoracic ganglion

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DELAWARE STATE MEDICAL JOURNAL

Issued Monthly Under the Supervision of the Publication Committee
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OCTOBER, 1953

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Per Copy $ .50

TO WHICH OF THESE SHALL WE DIRECT OUR ATTENTION?*

Victor D. Washburn, M. D.,
Wilmington, Del.

We have been accustomed to thinking of this as a century of progress and achievement in the sciences and in the arts. Organized medicine, in the fields of public health administration, sanitation, medicine and surgery, views with pride and satisfaction the accomplishments of the past fifty years.

To quote Dickinson and Welker[1] "the crude mortality rate of the United States dropped from 17.2 deaths per thousand population in 1900 to only 9.7 in 1949 and an estimated 9.6 in 1950. Spectacular as it is, this drop of almost 45 per cent is in reality an understatement of progress, because the population has doubled, the number of people over 65 has quadrupled." This quotation, brief and limited in scope as it is, may serve to focus attention on the amazing progress that has been made in the conservation of human lives since the beginning of the twentieth century.

These accomplishments may be attributed, in part at least, to the clinical application of knowledge gleaned in the laboratories of countless research workers, the development of immunological and other measures of preventive medicine, the use of antibiotics and chemotherapy, advances in internal medicine, in surgical techniques, in anesthesiology, and in improved living conditions. Credit must also be given to higher standards of undergraduate and postgraduate training which have had an important effect upon the quality of medical care.

As a result of these advances much human suffering has been prevented, the duration of many diseases has been shortened and the lives of countless persons have been prolonged. However, we live in the midst of a changing social order. Nations and peoples are on the march. Old customs and habits are being replaced by others. It is now necessary that we perform our accustomed duties and more.

We are obliged to consider thoughtfully and objectively the criticisms that are directed at us both from within and from without the profession. Where our problems stem from misunderstanding, we must address ourselves to the task of removing the cause of such misunderstanding. If we are at fault, the fault must be recognized and corrected.

Let us consider some of the criticisms and problems as we know them.

It has been stated in the medical press and quoted in the public press that unnecessary operations have been performed. That some surgeons split fees with referring doctors, this without the knowledge of the patients concerned.

Complaints have been made that patients in modest circumstances have been charged beyond their ability to pay, and that some patients are charged exorbitant fees.

We have been told that as doctors we are careless about exercising our right of suffrage, that we do not contribute our share of the cost of operating private community agencies, and that we do not participate in local community organizations.

That newspaper men find doctors difficult, sometimes to the point of irritation and impatience, this because of our unwillingness to speak freely on matters which they consider as of public concern or interest.

The maintenance of good physician-hospital relations with respect to certain of the specialties in medicine is a problem that is nationwide, complex and controversial.

Adequate and competent care for the medically indigent and the indigent represents a major problem not only to the community but the medical profession which should furnish leadership in this field.

---

* Presidential Address, delivered before the Medical Society of Delaware, Wilmington, October 14, 1953.

The medical care of veterans is a problem that is nationwide, involves everyone, is complex, involved in politics, and the basis for misunderstanding and much ill will toward organized medicine.

Social security for self employed individuals, including physicians, has been recommended to the Congress by President Eisenhower. This too is a subject of controversy which involves the medical profession.

To these criticisms and problems, I have this to offer:

I have been actively associated with the medical profession and the hospitals of Delaware for well over four decades.

I assert that an overwhelming majority of the medical profession is honest and that this applies to all fields of medical and surgical practice. There are those who offend, but these are the exception.

The phrase "unnecessary operation" should not be used carelessly. It is one thing to wantonly perform a surgical operation for the sole purpose of obtaining a fee; it is quite another to operate upon a patient and find that an error has been made either in judgment or in diagnosis.

One of the basic principles of a profession is involved when we discuss such matters as the charge that unnecessary operations are performed, that we split fees, overcharge patients of modest means or other patients.

In Section I of the Principles of Medical Ethics of the American Medical Association[2] it is written: "A profession has for its prime object the service it can render to humanity; reward of financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession, an individual assumes an obligation to conduct himself in accord with its ideals."

It is important and essential that we realize that it is the duty and the responsibility of each state and local medical society, as well as of each hospital staff, to maintain by example and precept a climate of public medical opinion which will encourage high ethical standards and punish those who fail to conform to such standards.

Frank discussion in advance between doctor and patient of such matters as fees for elective surgical operations, hospital, laboratory and other charges would do much toward improving our relations with the public.

Our Grievance Board must be alert, tactful and impartial, ever ready to listen to those that consider that they have in any manner been treated unjustly by a member of the medical profession.

It is true that as a profession we have, as it were, lived apart. We have been preoccupied at all hours of the day and night with the well-being of our patients. Sometimes our patients have been critically ill and have been entitled to and received our undivided interest and attention. As a profession, we perform many public services.

For example, during the current year, a component of this Society, the New Castle County Medical Society, cooperated with interested citizens in providing leadership in the program which had as its objective the enactment of legislation clarifying the authority of the Wilmington Board of Health.

Another example is that of the Delaware State-wide Chest X-ray Survey, Inc., now in progress. This survey, which is really an extensive, cooperative health education program, was sponsored and supported by public health boards, the Delaware Anti-Tuberculosis Society, the Medical Society of Delaware, the Delaware Division of the American Cancer Society, the Delaware Heart Association, and other private agencies. Members of our Society have devoted many hours to this Survey, making countless addresses to lay groups and attending committee meetings.

We have always devoted a large part of our time and energy to the care of those who are unable to pay for our services. We have been inclined to disapprove of those of our profession who have interests outside of the practice of medicine. In short, we have believed that we had no time to spare for community organizations and that in caring for the poor we had a made substantial contribution and more should not be expected of us. It is my firm conviction, based upon long personal experience, that physicians can and should broaden their activities. As citizens, they should participate personally and financially in community activities as members of Chambers of Commerce and similar organizations.

They should vote at primaries and elections. Politicians are practical people. They are very much interested in the ideas of people who vote and who are influential in matters of public interest and concern. I hold that physicians can be public-spirited citizens as well.

In Delaware, our relations with press and radio have been, with the rarest of rare exceptions, cordial and cooperative.

The medical profession is deeply indebted to the newspaper profession for its sincere efforts to interpret and convey our messages to the public. Our traditions and those of the newspaper profession stem from the stern experience of many years. Each profession has a duty to the public which is of prime importance. The tradition of the medical man is to be conservative, to emphasize that professional success must come only as the result of recommendations of patients and other members of the profession.

It is within our tradition to conceal from the public matters of controversy until the profession has agreed upon a policy. In our zeal to avoid publicity for those who perform unusual surgical operations or service, we overlook the harm that we do when we, by the pressure of medical public opinion, force anonymity upon those who are designated to act as our spokesman. In this manner, we, in the opinion of the press, sterilize or rob the news of its authority. When we do speak or write, we not infrequently use language which is clear to us, but not to our listeners or readers.

It is in the tradition of the newspaper profession that it is their duty to bring matters of general interest to their readers quickly and correctly. We in the medical profession should realize that we need, indeed we must have, the help of the press as well as that of an informed and understanding public opinion.

Without the assistance of these powerful factors our efforts to control the few recalcitrants within our own ranks will continue to be most difficult, and without avail in our stand against those who would foist socialized medicine upon us. We must know, and be governed accordingly, that the press will be our allies only if our relations with them are based upon frankness and truth. I have had many years experience with newspaper men and women. I have frequently given them, in confidence, information without reservation or evasion. I have never had, at any time, my confidence violated.

The Report of the Joint Committee on Hospital-Physician Relationship of the Boards of Trustees of the American Medical Association and the American Hospital Association has been approved by the House of Delegates of each of these associations. It is an important step forward in that it not only provides a basis for discussion of this exceedingly controversial subject, but also lists six principles which may be used as a guide.

The sixth of these principles reads as follows: "A physician shall not dispose of his professional attainments or services to any hospital, lay body, organization, group, or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the patient, the hospital, or the physician." An agreement that no one is to exploit anyone else is a good point of departure. However, it is my opinion that it will take more than this statement of principles to accomplish our purpose.

In order that we might familiarize ourselves with some of the problems and methods of providing medical care for the indigent and the medically indigent, (we consider as medically indigent those who have an income sufficient for ordinary needs, but not for medical expenses) we have invited three of our colleagues from the neighboring states of Maryland and Pennsylvania to describe at this meeting of our Society the methods used by them in attempting to solve this problem.

It is our hope that, as a result of our study of these reports and of those of other states, we may be in a position to recommend to the people of Delaware a plan which would provide a system of good medical care for those who are unable to provide for themselves, including the service of physicians of the patients' choice on a basis which would not bankrupt the state.

We join with our fellow citizens in the whole-hearted belief that the Federal government has a duty to care for any man or woman who has become physically or mentally handicapped as a result of military service. We are opposed to providing at Federal expense care to Veterans whose disabilities have no relationship to military service.

Our opposition is based upon the fact that we believe that our present policy of providing veterans care for nonservice connected disability will inevitably lead to socialized medicine. We believe that the present program divides our people into those who have had military service and those who have had no such service—the first group to receive medical service provided for out of tax funds and the second group to pay for their own medical care.

We are opposed to the forced extension of "social security" to self-employed individuals, including members of the medical profession. We are opposed because we believe this extension of social security to an additional ten million persons is but another step on the road to socialism—and to socialism we are opposed.

I would answer the question posed in the title of this address in this way:

In the situation in which we find ourselves we must recognize that human relations, public relations, and dynamic leadership are the personal responsibility of each of us who practice medicine.

That this personal responsibility must express itself in the manner in which we deal with individual patients. In our thinking we must consider the financial status of our patients as well as their welfare as citizens, and we must now, as never before, relate our actions to their effect upon the public relations of the medical profession.

That this personal responsibility involves a duty to society in terms beyond our responsibility as physicians and includes activities such as are manifested by public-spirited citizens in other walks of life.

That now we have the opportunity of taking our place with those who would not only preserve and improve the benefits of our system of government, but also oppose those who would weaken or destroy it.

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2. Principles of Medical Ethics of the American Medical Association, 1942.

RENAL UREMIA

Observations On A Series Of 84 Patients With Particular Reference To Combined Electrolyte Management A Preliminary Report*

Richard A. Neubauer, M. D.**
Wilmington, Del.
and
Lillian Dunsmore, M. D.***
Philadelphia, Pa.
with the technical assistance of
Elizabeth Garrigues, B. A.

Over the past two years certain clinical and chemical observations have been made on 103 patients with renal uremia in Wilmington and Philadelphia. In 84 of these patients a combined electrolyte approach was used as a method of study. This consisted of the administration of hypertonic sodium lactate along with calcium salts and occasionally potassium salts. Since this regime, adhered to strictly, appears to offer a different approach to uremia and acidosis resulting from intrinsic kidney disease, it is the purpose of this paper to relate how such patients are selected for this study, including indications and contra-indications of the regime, along with an exact account of how the electrolytes are administered.

A review of the 84 cases managed will be presented. As the life expectancy of a patient with chronic renal disease in a stable phase of the lesion is unpredictable, the data presented here will refer only to chemical changes encountered in these patients after usual measures failed to produce chemical amelioration. While a certain percentage of these patients showed varying degrees of clinical improvement, it must be stressed that the results reported here indicate only a significant fall in the blood urea nitrogen value and an elevation of the CO_2 combining power. More detailed chemical data and clinical results will be the subject matter of future papers. [1, 2, 3]

---

*This work was supported by funds made available from the National Heart Institute, Bethesda, Maryland, and the Board of Directors of the Memorial Hospital, Wilmington, Delaware. Subsidiary funds were allocated to this project by the Delaware Heart Association and the Philadelphia Diabetic Society.

**Director of Medical Research, Memorial Hospital

***Resident in Medicine, Philadelphia General Hospital. Present address—Phillipsburg State Hospital, Phillipsburg, Pennsylvania.

Case And Methods

Laboratory methodology for the studies will be published in detail elsewhere.[2]

The selection of proper cases for this study is of the utmost importance and will be further discussed under indications and contraindications. The patients selected have been limited to those critically ill suffering from uremia and acidosis due to advanced organic kidney disease. The term "critically ill" is used to include only those for whom routine management seems to have nothing to offer. In the selection of cases a mutual understanding is made with the attending physician that all other available measures of management have been tried without success. The understanding includes that the patient to be studied is in the last stages of the disease. Therefore should the patient die during the period of observation or while receiving specific electrolytes, no discredit or blame may be directed at the regime.

Before institution of the electrolyte study in such cases adequate baseline data should be collected and the following factors must be corrected.

1. **Dehydration** must be treated orally or with intravenous solutions at the discretion of the attending physician. A good urine output is advisable and should there be oliguria due to dehydration, electrolyte management must be withheld until this is overcome. Should clinical improvement result from the correction of this factor or with the other factors to be mentioned, the use of these electrolytes is withheld until an accurate estimation of their need is made.

2. **Infection:** It is known that patients with advanced renal disease are readily susceptible to infection. This may not necessarily be in the urinary tract yet it may lead to a fatal termination. Unfortunately, in patients studied to date, a certain number have failed to react to systemic infections with the usual criteria of fever and leucocytosis. Because of this, comatose patients should perhaps be started upon anti-biotics during the baseline period. Urine cultures should be made during this time as well as other studies that may be indicated in investigating an infection. (Pulmonary and renal infections have accounted for death in several cases, which were not apparent from the clinical or laboratory standpoint.)

3. **Obstruction:** A free flow of urine is necessary and any obstruction in the genitourinary tract must be corrected when possible.

4. **Dietary Protein Restriction:** As part of the usual baseline study in cases that are not comatose, a dietary restriction of protein (20-40 grams daily) with forced calories is urged. This diet also contains one gram of sodium chloride (17-25 mEq). With this diet alone a percentage of cases will show clinical and chemical improvement.[4]

Collection of Baseline Data

No patients except those who are moribund should be exposed to this combined electrolyte approach until adequate baseline data has been collected. At least forty-eight hours baseline data is mandatory and as much as possible must be obtained depending upon individual circumstances (4 to 6 weeks when feasible). The minimum necessary data includes:

a. Blood pressure every four hours times six, then twice daily.

b. A very accurate fluid intake and output on a twenty-four hour basis from 7 a. m. to 7 a. m.

c. Daily weight when possible.

d. Calculation of dietary sodium, potassium and chloride. This may be done by having meals weighed before and after serving and then referring to a standard table.[5]

e. Twenty-four hour urine analysis for sodium, potassium, and chloride. This is absolutely necessary to rule in or out a sodium or potassium losing nephritis.

f. Routine urinalyses done on the first voided specimen daily for three days and then once weekly.

g. Daily blood urea nitrogen and serum

TABLE I

Total Patients Observed	Electrolyte Study	Response Usual Therapy	Expired during baseline period receiving usual therapy
103	84	5	14

TABLE II

Diagnosis	No. Patients	Chem. Response	No Chem. Resp.	Causes of Failure
Chronic Glomerulonephritis	23	20	3	Progressive Disease Infection Unknown
Chronic Pyelonephritis	19	14	5	All fulminating infections 4 treated less than 72 hrs.
Polycystic Kidney	9	4	5	3 alkalotic from M/6 Na Lactate 1 temporary response 1 infection and cirrhosis
Post-obstructive Uremia	12	10	2	Fulminating Uremia Infection
Kimmelstiel-Wilson's Disease	8	4	4	2 Infection 2 Unexplained
Diabetic Renal vascular disease	2	2	0	Maintenance therapy not necessary
Malignant Hypertension	10	3	7	No clinical response. Chemical only temporary
Senile Nephrosclerosis	1	1	0	
Total	84	58	26	

sodium, potassium, chloride, and CO_2 combining power determinations.

h. Calcium and phosphorus estimation.

i. Sedimentation rate. Infection being ruled out, this associated with increased microscopic or gross hematuria may indicate activity in the kidney lesion, thus presenting a contra-indication to this electrolyte study.

j. Electrocardiogram.

k. Chest x-ray.

l. If edema is present, venous pressure and circulation time.

m. CBC at least weekly.

n. Phenolsulfonephthalein dye excretion.

o. Urea clearance if possible.

PROTOCOL USED FOR THE ADMINISTRATION OF COMBINED ELECTROLYTES:

This protocol must be adhered to strictly in regard to dosage schedule and time intervals.

For simplicity the protocol will be divided into two parts: treatment of comatose cases, and treatment of non-comatose cases. These two will overlap as the management of patients who respond from coma is identical with ambulatory patients excepting early dietary restrictions.

Comatose Cases. All therapy here is intravenous.

1. At 10 a.m. after baseline chemistries have been drawn—assuming dehydration is corrected and a good urinary output is present—1000-1500 cc. of 5% glucose in water or 10% Travert (Baxter's glucose-fructose solution) with two to six grams of calcium gluconate (10% solution)* and ten units of regular insulin. Potassium as potassium acetate or potassium chloride is added to this solution (2 to 4 grams) only if the serum value is normal or low normal and the circulatory system is stable with adequate urine formation. This solution is administered in 2 to 2½ hours.

2. At 4 p.m., never less than three to four hours after the above, intravenously 120-240 cc. of one molar sodium lactate** at times

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*A personal communication from Dr. J. P. Peters indicates that intravenous calcium chloride or calcium lactate would probably be more efficacious since the yield of calcium from calcium gluconate is extremely small.

**Eli Lilly preparation of one molar sodium racemic lactate available in 40 cc. ampules used undiluted or when diluted with glucose in water as a ½ molar solution. This was never used in this series in a 1/6 molar concentration.

with equal part of 5% glucose in water. To this is added 0.5 grams aminophyllin and this is given over a period of 1 to 2 hours with frequent check of the blood pressure, pulse and respiration. The amount of sodium lactate used will depend upon a fall in the blood urea nitrogen value, i.e., if an initial drop does not result or continue the sodium lactate is increased. The equal parts of glucose in water are added only if cardiac embarrassment is suspected or if extra fluid is desirable. (Early in the study, certain cases of simple kidney tissue loss received a combination of hypertonic sodium chloride-lactate because of a slow response and a marked decrease in the serum chloride level. This was administered as 200-250 cc. two and one-half percent sodium chloride with 40-120 cc. one molar sodium lactate and 0.5 grams aminophyllin. The effect of this combination was uncertain since there was little change in the serum chloride value.)

At 10 p.m., never less than 3-4 hours after completion of the hypertonic infusion, 1000-1500 cc. of 5% glucose in water or 10% Travert with 2 to 6 grams of calcium gluconate and 10 units of regular insulin should be given. When necessary potassium is added cautiously to this infusion (2-4 grams) depending upon the serum and urine potassium values.

Should the patient rouse from coma with the above management so that water could be tolerated orally the fluid intake is maintained at 2500-3000 cc. (depending upon the urinary output) with supplementary intravenous fluids.

The diet at this point consists of mashed potatoes, salt free toast, and butter with jelly-coke syrup and hard candies. Oral sodium lactate is added as soon as possible and the diet is gradually increased up to 40 grams of protein with 1.0 gram salt.

Non-comatose patients. Since the management of a patient rousing from coma who is able to tolerate oral fluids, food, and medication is essentially the same as the administration of electrolytes to the non-comatose uremic patient the management here is almost identical with few exceptions.

Non-comatose uremic patients are selected for the study if they have a urea clearance of below 5% of normal and a phenolsulfonephthalein excretion of less than 10% total while experiencing symptoms of their disease. These patients are immediately placed upon protein restriction, forced calories, with 1.0 gram sodium chloride daily. The blood urea nitrogen value is followed until it remains unchanged, and then a 10% suspension of calcium lactate in amphojel is begun.[6] Should the serum potassium value be low[7] in such a case a one molar solution of potassium acetate is also started to ascertain the effect of these electrolytes upon the blood urea nitrogen and the CO_2 combining power. When no fall in the blood urea nitrogen occurs or if a falling value becomes stabilized, then one molar sodium lactate is begun. A rising blood urea nitrogen level and a falling CO_2 combining power is an indication for earlier administration of sodium lactate.

The management of the non-comatose patient in regard to electrolytes is as follows:

a. 40 cc. one molar sodium lactate three to five times daily.*

b. 20-40 cc. of 10% suspension calcium lactate in amphojel four times daily.

c. When potassium is needed: 5-10 cc. of one molar potassium acetate 3-4 times daily.**

Potassium values are followed frequently and an upward trend of this value is an indication to stop all added potassium immediately.

If vomiting or diarrhea occurs with institution of oral therapy, the patient is urged to repeat the dose in 20 minutes. Gastrointestinal irritation from the hypertonic solutions tend to disappear in several days.

Anemia is successfully controlled in certain cases with the administration of 100-200 mgm. of cobalt chloride*** daily.[8] If the anemia does not respond within a period of fourteen days and it is felt advisable to attempt to correct the anemia (which is indeed not without danger in the patient with chronic renal disease) the following procedure is adopted. Packed red cells prepared from a fresh donor are obtained within twenty-four hours. Forty cc. of one molar sodium lactate is given intravenously followed immediately by 100-150 cc. packed cells again followed by 40 cc. of one molar sodium lactate. This is repeated every several days until a sufficient response is obtained. To date, with this method, no side effects of transfusions have been noted.

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*Special preparation of Robert Bogash, B.S., made available through the Libby Drug Co., Wilmington, Del. This preparation has a high syrup content and furnishes an added 800 calories daily (carbohydrate).

**Also prepared by Robert Bogash, B.S.

***Cobalt chloride prepared by Mr. Robert Bogash, B.S. made available by Libby Drug Company, Wilmington, Del.

Upon discharge the patient is maintained on the same regime and followed initially at weekly intervals. As an outpatient, determinations are done for blood urea nitrogen, hemoglobin, serum sodium, potassium, chloride, and CO_2 combining power. Each patient is instructed as to recording his own intake and output and weighs himself three times weekly in the morning upon arising. Twenty-four hour urine samples are collected by the patient and brought in for analyses for sodium, potassium, and chloride weekly.

Maintenance therapy has been indicated in most of the cases studied, this being judged by renal function studies below 5-10% of normal or by a clinical and chemical deterioration upon withdrawal of electrolytes.

RESULTS

Table I indicates the total number of patients observed. It is interesting that with salt restriction, protein restriction, forced calories, and the control of infection, dehydration and obstruction, only 5 patients showed a satisfactory chemical response. Fourteen of the patients expired during the baseline period. These constituted cases of chronic glomerulonephritis and chronic pyelonephritis and the reason for exodus was infection or progressive uremia. No favorable chemical results were observed in these cases. Of the 103 patients studied 84 were subjected to a combined electrolyte study.

Table 2 presents data on 84 patients who received hypertonic sodium lactate orally or intravenously along with calcium salts and occasionally potassium. The majority of these patients had adequate control data but early in the study three moribund patients were begun on the regime within less than 24 hours. Thus, it is difficult to evaluate whether or not other measures would have caused a chemical change in these cases. The fall in the blood urea nitrogen and elevation in the CO_2 combining power was significant in 58 of the 84 cases (69%) studied. This occurred after other measures had failed to alter the mentioned chemistries. Certain of these changes were only temporary and this does not imply that permanent chemical amelioration was achieved.

Of the patients studied some improved clinically while others showed only chemical improvement without clinical results. This data will be the subject of future papers.[2, 3]

Any infection may be enough to upset the balance in patients with chronic renal diseases so that uremia and acidosis ensue. This seems to be the most common cause of failure of desirable chemical change in this series. Frequently the infections were not controlled with intensive antibiotic therapy. Several patients with advanced infections with chronic pyelonephritis were treated with electrolyte therapy in an attempt to prolong life until the infection could be resolved. Results were expectedly poor.

It has been of interest that a number of the patients who experienced a favorable chemical change had a reversal of this pattern with discontinuance of therapy. The inexact use of the protocol in regard to dosage schedule and time intervals resulted in poor results in four cases.

DISCUSSION

Since the outlined regime seems to be associated with favorable chemical changes in many patients with uremia and acidosis, it is felt that this presents another method of approach to uremia. In some of these cases the blood urea nitrogen fell as much as 50 mgm % within the first 24 hour period of sodium lactate administration. In certain of the cases the CO_2 combining power rose to above 55 mEq/L but with added calcium no tetany ensued. The fate of the falling blood urea nitrogen level is obscure as present studies indicate that this is not always recovered in the urine.

The serum chloride levels showed a reciprocal drop with the elevated CO_2 combining power, and it is of note that blood lactate levels as high as 11 mEq/L have been observed in several cases.

Marked uptake of base was seen in many of these patients when electrolytes were administered. This frequently was in the form of sodium, and in spite of significant sodium retention no edema formation was noted; nor was there associated pulmonary edema, induced hypertension or aggravation of an existing hypertension. Eight cases studied lost edema fluid while retaining sodium indicating that the volume of distribution of hypertonic sodium lactate must be greater than the extra-cellular compartment.

Many of these patients were from a large city hospital and follow-up has been lost. Other well controlled cases lived for varying lengths of time on the electrolyte regime. A significant observation on the controlled cases who have eventually come to post mortem examination has been that regardless of the degree or type of kidney disease, sodium may be handled in almost normal fashion when administered as hypertonic sodium lactate. Fox's observations in the nephrotic syndrome[9] as well as our own in this group[10] tend to indicate that this is also true in the stage of subacute nephritis when sodium is administered as lactate or acetate. It appears that the excretion of sodium in advanced renal disease is governed to a large extent by the anion with which it is administered.

Since the clinical usefulness of this therapy is to be established, it is felt that the indications for its use may be found mainly in the following types of kidney disorders—listed in order of best expected response.

Indications:

1) Post obstructive uremia.

2) Hydronephrosis due to repeated obstructive phenomena as usually associated with prostatic hypertrophy.

Therapy is indicated in these cases only when the obstruction had been relieved and a period of 6 to 8 weeks with adequate fluids and drainage and no chemical or clinical improvement has ensued. Therapy may then be used either to correct the chemistries or as an adjunct to surgical relief.[3].

3) Chronic pyelonephritis.[11] This group of patients should be treated only after repeated urinary cultures are negative and when survival does not appear possible with routine therapy.

4) Diabetic nephrosclerosis. This group may be treated only after regulation of the diabetes and obliteration of any infection.

5) Senile nephrosclerosis. This group may be treated cautiously after the preceding features have failed to benefit the patient.

6) Polycystic kidney disease.

7) Chronic glomerulonephritis. It is felt that patients suffering from this disease who are not moribund should not receive therapy unless the urea clearance and phenolsulfonephthalein repeatedly have been below 10% of normal function.

8) Kimmelstiel Wilson's Disease. This group of patients constitutes a different problem. The regime has been used successfully in such patients, but a 4 to 6 week period of fluid accumulation usually occurs. This is then followed by a gradual diuresis.[12]

Contra-Indications

1) Progressive clinical improvement with routine measures.

2) Any patient with kidney disease not in the chronic stage:

- (a) acute glomerulonephritis.
- (b) subacute glomerulonephritis with or without the nephrotic syndrome.
- (c) chronic renal disease with an exacerbation manifested by an elevated sedimentation rate, increased microscopic or gross hematuria or an active infection of the urinary tract.

3) Tubular necrosis. These patients do not warrant such therapy except under the most unusual circumstances.[13] Potassium particularly must be used judiciously if at all during the phase of anuria.

4) Oliguria. If this is on the basis of a renal lesion and not functional it stands as a contra-indication. In selected cases 2 or 3 days of therapy may be advisable, but should the urine output remain below 300 cc. daily further therapy should not be used.

5) Edema. Edema is frequently a contraindication. At times, however, the therapy may be used, especially if the patient has edema of Kimmelstiel-Wilson's disease. Ther-

apy may be started and tried for 5 to 7 days in other edematous cases, but if the urine sodium value does not begin to rise or if excessive edema is produced therapy must be stopped.

6) Cardiac Involvement. Since the sodium-retaining effect on the kidney tubules in patients with cardiac involvement is not clearly understood,[14] evidence of cardiac failure whether it be previously due to myocardial or valvular disease or due to a complication of chronic renal disease presents a serious contra-indication. The therapy has been used at times but must be limited only to an investigative nature.

7) Hypertension. Malignant hypertension with renal failure is a definite contra-indication. Hypertension secondary to chronic renal disease is not an absolute contra-indication but satisfactory results may not as frequently be obtained when this feature is present.

8) Cirrhosis. As a complicating feature in patients who also have renal failure, this is considered a contra-indication, since again different mechanisms acting on the kidney tubules are present.[15]

9) Previous Therapy with one sixth molar sodium lactate where clinical alkalosis has already been produced. This is not an absolute contra-indication but makes a good response questionable. At times sodium chloride has been used in conjunction with sodium lactate under these circumstances but with only temporary chemical results.

10) Overwhelming Infection — in patients with advanced kidney disease. This therapy has been tried in this group only in an effort to improve kidney function during an attempt to combat the infection. None of these patients could be included in any series of good results, if improvement resulted.

11) Pathological systemic disease impairing renal function such as multiple myeloma and lupus erythematous.

The major cases of failure of this regime are associated with: (1) Infection. (a) Not recognized ante-mortem. (b) No ability to control infection with anti-biotics. (2) Too lengthy a period of observation since certain cases died with less than 72 hours of electrolyte therapy. (3) Failure to conform to the protocol in regard to dosage and schedule. (4) Activity in the kidney lesion with a clinical picture of fulminating uremia. (5) Several cases showed dramatic clinical and chemical results, but experienced sudden death with no apparent reason for this at post-morten examination. (6) In three instances intravenous sodium lactate was not readily available. Oral sodium lactate was tried but the absorption from the intestines in advanced uremia was dubious since no chemical changes occurred.

The final efficacy of this combined electrolyte regime will ultimately be judged by the reproducibility of clinical and chemical results in the hands of other investigators. Since this approach does produce certain chemical changes, it may perhaps be a contributing point in the management of advanced uremia.

In a review of the literature, it appears the effect of sodium lactate is perhaps different than sodium bicarbonate in control of this uremia, although enthusiastic reports from the use of sodium bicarbonate have been reported sporadically. [16, 17, 18, 19, 20, 21] Recent communications have indicated good results with sodium bicarbonate in uremia in the hands of certain investigators. [22, 23, 24]

The place of lactate in the Kreb's Cycle or the fact that lactate is converted to bicarbonate by a cellular process may be determining features.[25]

It must be stressed that this approach is still investigative in nature, and it should not be attempted indiscriminately unless adequate facilities are available.

Summary

1. A detailed report of the method of administration of certain electrolytes in combination to patients with uremia and acidosis has been presented.

2. The use of this regime was associated with a trend of favorable chemical changes in 69% of the 84 patients so studied.

3. Indications and contra-indications for this study have been presented.

4. Since certain patients benefited clinically as well as chemically after all usual

measures of therapy failed, it is felt that this may represent another approach to the control of uremia.

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MEGALOBLASTIC ANEMIA OF CHILDHOOD

Case Report of a Child Aged 8

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The disease "megaloblastic anemia of infancy" was first recognized as a clinical entity by Zuelzer and Ogden[1] in 1946. Their paper described 25 cases of megaloblastic anemia in infants in which detailed studies had been carried out and included the necessary criteria for such a diagnosis. While it is true that a similarity exists between this disease and pernicious anemia, there is a definite distinction between the two conditions.

Although pernicious anemia of childhood is considered to be a rare disease, many reports concerning it have appeared in the literature, but Peterson and Dunn[2] were the first to set down rigid requirements for such a diagnosis and by inference, question the accuracy of the diagnosis in cases previously reported.[3, 4, 5] The criteria set forth by them and later emphasized by others were as follows: (1) macrocytic anemia; (2) megaloblastic bone marrow; (3) histamine-fast achlorhydria; (4) a therapeutic response to liver or vitamin B_{12} with a relapse when therapy is discontinued. If these criteria are adhered to most of the cases of juvenile pernicious anemia described in the literature become unacceptable, and are best classified as anemias of megaloblastic type.

This type of megaloblastic anemia occurs primarily between the ages of 2 to 18 months, and although the etiology is not clearly understood, clinical observations indicate that infection is the precipitating cause, while deficiencies in diet may also cause the syndrome. Thus Zuelzer noted minor infections of ears, bronchi, and intestines as the cause of his patients' illness, but scurvey was also present in 25 per cent of his cases. Similarly, Amato,[6] reporting from Southern Italy, found his patients were fed breast milk for months without supplemental dietary measures.

In the reported cases the patients clinically had fever of varying degree according to the predisposing illness. Splenomegaly was present in less than half the cases, but hepatomegaly was invariably present. Pallor was a predominating feature along with anorexia, nausea, and vomiting. Although histamine resistant achlorhydria was present in most cases, it did not persist after cure of the anemia. The blood picture revealed a leukopenia, but this was not constant and depended upon the initiating infection. Macrocytosis was usually present, but its absence did not preclude the diagnosis since the marrow picture was the main diagnostic feature. This marrow picture is described as being identical with that of pernicious anemia in relapse. Hyperbilirubinemia was present in some cases along with an elevated urine urobilinogen, and the platelets were reduced in a majority of cases.

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Treatment of this disease is interesting in that unlike pernicious anemia once effective therapy is instituted the condition usually improves never to recur again. Folic acid and vitamin B_{12}[7] are found to be the treatment of choice with folic acid the better agent. Although a chronic deficiency of ascorbic acid seems to precipitate this condition, it is not essential in treatment. Thus, May[8] and his associates produced a megaloblastic type of anemia in monkeys by feeding a milk diet deficient in protein and ascorbic acid. Treatment with ascorbic acid alone did not produce the desired hemopoietic response unless folic acid was added. In humans ascorbic acid by itself is found to be of no value, whereas folic acid with or without Vitamin C will cure the megaloblastic anemia. Thus, we have two drugs capable of rendering a sustained cure, and because of the specificity of folic acid, some feel this disease is purely a folic acid deficiency.[9]

Thus the criteria[10] for a diagnosis of megaloblastic anemia of childhood briefly are: (1) macrocytosis (which need not always be present), (2) megaloblastic type bone marrow, (3) no relapse after therapy.

Zuelzer in his study stated that this syndrome is rare beyond infancy and quotes only one case in a child, aged 5, with celiac disease. The case presented in the present report is unusual since his age far exceeds that usual in cases of megaloblastic anemia of infancy.

Case Report

R. B., aged 8, was admitted to the Memorial Hospital 5/8/53, with a chief complaint of pain in the stomach and fever. The child's history apparently dated back to 5/4/53, at which time he was noted by his physician to have a fever, no other findings were demonstrable at that time. Along with the fever was some nausea, occasional vomiting, and anorexia. The child was given aspirin, but his fever continued to fluctuate between 101 and 99° daily. He was seen again on 5/6/53. At this time nothing further was found except that "his stomach hurt"; there were no findings to account for this fever, so the child was continued on aspirin until 5/8/53. At this time it was noted that the boy had a tender, palpable liver and a palpable spleen, the former extending for 5 cm., and the latter 6 cm. below the costal margin. The child appeared pale, with an icteric tinge to its sclerae, and his skin had a peculiar greenish hue. He was, therefore, admitted to the Memorial Hospital, and on admission it was learned that in the past the child had had a raised temperature about seven months before the admission. He was seen by a doctor at that time and the spleen was palpable. The doctor suspected infectious mononucleosis, but as the boy was not too ill no further studies were done and he apparently made a good recovery. The past history revealed that the child had always been healthy and active and extremely intelligent. He ate well and his mother had no problems concerning his appetite or the amount or the kinds of food he ate. It was also further noted that the child had a normal blood count some years previous at the time of tonsillectomy.

Physical examination revealed a child with an oral temperature of 101, pulse 96, and respirations 16. The skin seemed to have a peculiar pale greenish color to it, and the sclerae seemed icteric. There were some small anterior and posterior cervical nodes, but these were not tender. Heart and lung examination were normal. The liver was palpable and quite tender, extending 5 cm. below the costal margin, and the spleen was also palpable although not tender, extending 6 cm. below the costal margin. The remainder of the examination was normal.

The admission laboratory findings included a red cell count of 2.95 million with 10 grams of hemoglobin. The white count was 3,600 with 55% lymphs, 43% neutrophiles, and 2% eosinophiles, and the urinalysis was normal with the urine urobilinogen positive in a 1:50 dilution. The total bilirubin was 0.9 mgms.% and a bromsulfalein test was 0% while the thymol turbidity was 1.2 units.

Hospital Course: The child continued to spike a temperature between 101 and 98 until 5/27/53, at which time it remained normal.

The child was always very active but his appetite was definitely decreased, and he admitted feeling ill. Laboratory studies which were repeated revealed that the hemoglobin had fallen to 7.25 grams with a red cell count of 2.4 million. The white count was essentially the same. It was at this point that further studies were indicated to determine whether the child had a hemolytic anemia, or whether we were possibly dealing with a hepatitis. Accordingly, a fragility test of the red cells was done which proved completely normal and a Coomb's test was negative. Repeat urine urobilinogens were positive only in a dilution of 1:10. The cephalin flocculation study was 4 plus, and this was repeated 48 hours later and was again 4 plus. The reticulocyte count was 0.3% and this was repeated on three occasions and continued to remain 0.3%. The red cell count fell down to 1.87 million with 6 grams of hemoglobin. A gastric analysis was done on two occasions and free acid was obtained at both times; no histamine was used since the free acid determination revealed 12-20° free hydrochloric acid in the gastric juice. It was at this point that a bone marrow was decided upon. The bone marrow aspiration was done on 5/12/53 and revealed white cell precursors apparently normal. The red cell precursors showed a maturation defect, many megaloblasts being present, the features of the bone marrow being those of a megaloblastic type anemia. Since the reticulocyte counts were low and in the presence of rapidly increasing anemia, it was decided to institute therapy with folic acid and vitamin B_{12}. Because the child appeared ill, it was decided to use both agents together, although it was realized that folic acid alone might suffice. Nevertheless, vitamin B_{12} was given intramuscularly and folic acid in the dosage of 5 mgms. TID were given orally.

On this therapy the child began to improve, and five days after beginning therapy the reticulocyte count rose to 10.6% while the hemoglobin rose to 7.5 grams. A repeat reticulocyte count done three days later showed a 6.1% determination with a hemaglobin of 9 grams. The white count during this time rose to 7,900 with the same differential as presented before. No abnormal cells were ever obtained in buffy coat smears. A repeat bone marrow was attempted on 5/22/53 and at this time the marrow showed a marked hyperplasia of the red cell series, mainly normoblastic in character with only an occasional megaloblast being present. Many of the red cells were polychromatophilic, the features suggesting very active red cell regeneration. The child continued to improve, the liver became less palpable, the temperature remained normal, and by the time of discharge on 5/30/53 the liver was not palpable, although the tip of the spleen was still palpable. The child had lost his peculiar color and was sent home on combined therapy.

As an out-patient he was observed by his physician and monthly blood counts were obtained. His last hemoglobin was recorded as 11 grams with 3.5 million red cells being noted. Physical examination revealed him to be completely normal except for a still palpable spleen, and at the time of writing he has been off therapy for two months. We are anxiously awaiting the results of discontinuing therapy, and routine counts will be taken.

Comments:

This child on admission was thought to have infectious hepatitis but his falling hemaglobin led to further diagnostic measures. Zuelzer records one death in his series in an infant who had a high icterus index and postmortem examination revealed an infectious hepatitis; however, in our patient we did not feel a liver biopsy justified. The anemia could well have been precipitated by a hepatitis, but this is purely supposition and in personal communication[11] other hematologists are of the opinion that the liver and blood picture of our patient could all be on the basis of megaloblastic anemia.

In this case we feel the criteria for the diagnosis were met and the response to therapy is certainly consistent with the diagnosis. The main inconsistent point is the age of the patient as compared to the series in the literature, but cases[12] formerly presented as pernicious anemia in this age group may well have been megaloblastic type anemias and not true pernicious anemia.

Summary

1. A case of megaloblastic anemia in a child, aged 8, is presented with a good response to folic acid and vitamin B_{12}.

2. Discussion of megaloblastic anemia is presented.

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A CASE OF HEMOCHROMATOSIS (BRONZE DIABETES) IN A FEMALE

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Hemochromatosis, or bronze diabetes, to use its older synonym, is a rare disease of iron metabolism usually seen in males and only rarely in the female. It usually occurs after the age of 50, but in the case to be reported here, which was studied by the authors, the patient was of the comparatively young age of 40 and of the female sex. It is the object of this paper to present this case and also to discuss briefly the disease in general.

Case Report

M. T., Case No. 93191

This 40-year-old white female was first admitted to the Memorial Hospital on 8/21/51 with a chief complaint of abdominal pain. The past medical history included a hysterectomy 28 years previously for unknown reasons; the usual childhood complaints, including chickenpox and measles, and possibly malaria; pneumonia three years prior to the present admission; and two past pregnancies. The patient stated that she had been fairly well until three years prior to admission when she began to notice some bloating after eating followed by some pain located in the mid abdomen. She had never vomited, but had experienced nausea about eight weeks prior to admission. The nausea and pain became worse two months prior to admission, and the abdominal bloating much more pronounced. For two years prior to her admission, she noted a color change in her skin, occurring over most of the body, but especially marked in the hands and the torso. It was less marked in the face, but present there nonetheless. For five years prior to admission she had been treated for a "murmur of the heart" for which she had received digitalis, but she denied taking any silver salts or aspirin. The patient stated that the abdominal pain would usually begin in the mid epigastrium and then become generalized throughout the entire abdomen and was of sufficient intensity to prevent her from sleeping on many occasions. It was described as being of a knife-like stabbing character and, at times, of only short duration. The patient knew of nothing which would relieve the pain.

Physical examination revealed an emaciated, white female who appeared fairly active and alert. The skin of the entire body presented a delicate, slate-gray appearance, discoloration being especially marked in the skin of the hands and of the abdomen. The blood pressure was 90/60; pulse 84; respirations 16 per minute. Examination of the heart showed no enlargement, but a short systolic (grade 1) murmur was heard at the apex. Abdominal examination revealed an enlarged, but not nodular, tender liver which extended 9 cm. below the costal margin. The spleen was not palpable. Neurological, pelvic, and rectal examinations revealed no abnormalities.

Laboratory findings showed a red blood count of 3.5 millions, hemoglobin 12 grams, white blood count 3,300 with 7% eosinophiles. A total eosinophile count showed 93 per cubic millimeter, and after the 48 hour ACTH test, the eosinophile count was 44 per cubic millimeter. Prothrombin time was 41%, which on vitamin K therapy increased to 82%. The serology was negative. Urinalysis was negative. BUN was 8 mgms.%, plasma chlorides 615 mgms.%, plasma proteins 7.02 with an

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A/G ratio of 1.3:1. The bromsulfalein test showed 4% retention in 45 minutes; and on the second occasion, 0% in 45 minutes. The cephalin flocculation test was 4 plus, thymol turbidity 6.3 units, total bilirubin 0.9 mgms.%. A fasting blood sugar showed a level of 96 mgms.%, but a glucose tolerance test over a three hour period showed the following levels: 105 mgms.%, 270 mgms.%, 350 mgms.%, 355 mgms.%, and a final reading of 197 mgms. %. Urine sodium showed 20 mEq./L on a 24 hour specimen, and the urinary potassium was 16 mEq./L. An electrocardiogram proved normal, as did a G.I. series and barium enema. Chest x-rays showed pulmonary fibrosis and a small heart shadow.

Further diagnostic tests included a skin biopsy and a liver biopsy. The skin biopsy was reported as follows: "Within the basal cell layer of the epidermis there is a considerable amount of brownish pigment which, by special staining methods, proves negative for iron. This pigment is probably melanin. Scattered in the dermal tissues are a few fine granules of pigment which give a positive iron reaction. This iron is extremely small in amount. Diagnosis—skin biopsy compatible with hemochromatosis." The liver biopsy was reported on as follows: "The biopsy material consists of blood clot together with liver fragments. The liver parenchyma shows marked fatty change, and around the lobules seen in the biopsy material is fairly dense fibrous tissue in which in a few areas there is some bile duct regeneration taking place. Scattered diffusely throughout the tissue, but especially well marked in the liver cells themselves, are brownish granules of pigment. Special staining methods showed this pigmented material to contain iron and it is, therefore, in all probability, hemosiderin. There is no evidence of malignancy. The features here are those of a liver cirrhosis associated with the presence of a large amount of hemosiderin pigment, and they are compatible with a diagnosis of hemochromatosis." Urinary urobilinogens showed values which went as high as a 1:400 dilution. On the basis of all the above findings, it was felt that a diagnosis of hemochromatosis was justified, and after three weeks of hospitalization the patient was discharged to be followed in the out-patient department.

The patient was re-admitted one week after the previous discharge complaining of increased abdominal pain with extreme tenderness in the right upper quadrant and increased abdominal distention. On this admission further inquiry into the patient's history revealed that she was somewhat addicted to alcohol—a fact which had not previously been appreciated. Physical examination revealed the findings already elucidated at her first admission, the only change being an increase in tenderness on palpation of the right upper quadrant of the abdomen. The patient's condition began to deteriorate fairly rapidly, and she gradually passed into a semicomatose state, and it was felt that this was due to hepatic damage. Accordingly, on October 1 cortisone therapy was instituted, the dosage schedule used being that in vogue at that time; namely, 300 mgms. the first 24 hours, followed by 200 mgms. in 24 hours, gradually tapering off to 50 mgms. per day. During the whole of this time she was maintained on continuous intravenous glucose therapy together with the necessary electrolytes required to keep her in a properly balanced state. Seven days following the institution of this therapy the patient began to respond, as evidenced by a lessening of the degree of coma, and a general state of lethargy ensued. Thirteen days after the institution of this therapy the patient emerged from her comatose and lethargic state and became fairly alert and began to take food by mouth. This improvement, however, unfortunately proved to be of a temporary nature only, and she gradually slipped back into a state of coma from which she never recovered, and she expired one month later.

Autopsy revealed the body of an extremely emaciated, while female looking somewhat older than the stated age of 40. The skin over the entire body presented a bluish-gray appearance. The sclerotics were yellow in color. The heart was small, weighing 240 grams, but showed no lesions of the valves or muscle. There was no evidence of old or recent infarction. Within the peritoneal cavity adhesions were present between the parietal and visceral peritoneum at many points, especially noticeable beneath the diaphragm. What were described as massive adhesions were present between the omentum and the parietal peritoneum in the region of the umbilicus. The liver was somewhat small, weighing 1,060 grams, and its surface exhibited a marked pebbled appearance with areas of more extensive scarring. The cut surface presented a coarsely mottled appearance, and both the surface of the organ and the cut surfaces were of a uniformly reddish-brown color. The spleen was enlarged, weighing 320 grams. Apart from a large infarct, the splenic parenchyma appeared normal. The pancreas was of firm consistency and had a reddish-brown color, and the gross examination showed an apparent increase in the amount of fibrous tissue in the organ. The veins at the esophageal-gastrict junction were much more prominent than in a normal subject and were apparently varicose. The remainder of the gastrointestinal tract appeared to be normal. The body of the uterus was absent, but the cervix remained. The left ovary was absent; the right ovary was present, but appeared normal. The lymph nodes alongside the abdominal aorta were enlarged, soft in texture, and presented a reddish-brown color. The remainder of the organs appeared normal to gross examination.

Histological examination showed the following features: The liver showed advanced fatty change of the liver cells together with a marked multilobular cirrhosis. In the areas of fibrosis there were collections of lymphocytes and areas of bile duct reduplication. Within the liver cells and also within the fibrous tissue there were large deposits of hemosiderin. The pancreas showed a marked increase in the interstitial tissue of the organ, lying in which the glandular elements were forming small clumps. Both within the fibrous interstitial tissue and in the cytoplasm of the cells forming the parenchyma of the pancreas there were deposits of hemosiderin granules. Similar granules were present in the cytoplasm of the islet cells. The muscle fibers of the myocardium showed granules of hemosiderin lying on either side of the nuclei. The abdominal lymph nodes showed deposition of hemosiderin within the recticuloendothelial cells of the tissue. The pituitary gland showed deposits of hemosiderin lying within the cytoplasm of the cells making up the anterior part of the gland. Similar deposits of hemosiderin were noted in the cells of the ileal mucous membrane and in the cells of the zona glomerulosa of the adrenal glands. Similarly, the cells of the gastric mucosa showed deposits of hemosiderin. The lungs showed a well marked bronchopneumonia, and the spleen showed an area of infarction, but no hemosiderin was noted in this organ.

Discussion

Hemochromatosis is a disease characterized by the following triad of symptoms: pigmentation of the skin, cirrhosis of the liver, and diabetes. It is a comparatively rare disease, being more common in males than females, and up to the year 1950, only thirteen cases had been recorded in the latter. It is a disease of later life, the majority of cases occurring after the age of 50 and no case has been described in a patient below the age of 20 years. It has been suggested that the age incidence is due to the fact that a long period of time is needed for the deposition of the excess iron, and the sex distribution by the continued monthly loss of iron in the female over a considerable part of her lifetime, thus giving less opportunity for excess iron accumulation. As mentioned previously, the case described here is of unusual interest in that the patient was a female of the comparatively young age of 40 years.

In the past, diagnosis has rested on clinical findings, diabetes as indicated by laboratory tests, and the somewhat unreliable method of skin biopsy. With the introduction of liver biopsy, however, a most useful diagnostic technic is now available,[2] since the histological picture of the liver in this disease is almost pathognomonic.

Desforges[3] has drawn attention to the fact that abdominal pain may be a major symptom in patients suffering from hemochromatosis, and it is interesting that this symptom was so prominent in the patient presented here. One of the theories advanced for this pain is that it is due to adrenal cortical insufficiency, and while it is true that there was histological evidence of adrenal involvement in the present case, it must nevertheless be recognized that this patient also had rather extensive intraperitoneal adhesions which, although unlikely to have caused her type of pain, might conceivably have done so.

The etiology of this disease remains obscure. Some years ago Mallory's theory of copper intoxication based on animal experiments proved popular, but this has now been generally discarded. It would seem that in some way the intracellular iron physiology is upset, but this is mere speculation. Attempts to produce hemochromatosis in animals by continuous intravenous administration of iron have proved inconclusive, but it is significant that in recent years cases of hemochromatosis have occurred in patients who have received multiple blood transfusions over a period of years.[4]

SUMMARY

1. A case of hemochromatosis in a comparatively young female is presented.
2. A brief discussion of the disease is presented.

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A METHOD OF TREATMENT OF STASIS ULCERS OF THE LOWER EXTREMITY

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The method of treating stasis ulcers of the lower extremity to be herein described is composed of the old method, (apparently largely forgotten with the passage of time), of applying pressure with a rubber sponge and elastic bandage, combined with the use of Varidase (streptokinase and streptodornase, Lederle) ointment.

The application of pressure by means of a rubber sponge was described by McPheeters in 1929 and before him in 1924 by Nobl. The method used by the present author is essentially similar to that described by McPheeters, with a few modifications, and is as follows:

The ulcer area is cleaned with a 1:1000 solution of aqueous zephiran chloride, the necrotic tissue is debrided away, and any exuberant granulations are cauterized with a silver nitrate stick. A bland ointment is then applied to a piece of sterile gauze, and the gauze is applied to the ulcer. Bacitracin ointment has been found to be ideal for this purpose, because it speedily clears up infection; it is a non-greasy ointment and is therefore easy to tremove at the time of redressing, in contrast to zinc oxide ointment, for instance, which is difficult to remove; and it prevents the gauze from adhering to the ulcer. Several layers of gauze are placed over this to absorb the ulcer exudate, and next a piece of foam rubber, one-half to one inch thick, which will cover an inch or more beyond the edge of the ulcer is applied. Several more layers of gauze are applied over this, and the whole is snugly wrapped with a two or three inch cotton gauze bandage. An Ace elastic bandage is then wrapped on the leg from the toes to the knee. If an ordinary cotton elastic bandage is used, it should be applied as tightly as possible, but if a rubberized elastic bandage is used, and this type is somewhat better because it more satisfactorily conforms to the contour of the foot and leg, one should be very careful not to draw this too tightly, because it is possible to produce ischemia and gangrene with a rubberized bandage. An elastic bandage does not usually remain satisfactorily wrapped for more than a day or two, so it can be removed and rewrapped by the patient or physician as necessary, without disturbing the dressing beneath, which is held in place by the gauze bandage. The whole dressing should be changed when necessary and this is usually every other day to twice a week at first, but as the ulcer becomes cleaner and the exudate diminishes, once a week may be sufficient. Further debridement should be done at each redressing.

It is important to have the patient carry on his usual activities during the treatment, and he should be told that the more he walks, the quicker the ulcer will heal, as the muscular action involved helps to improve the sluggish circulation and hasten the subsidence of the edema. If the patient walks enough, the pain from the ulcer is usually gone in several hours after the first application of the dressing.

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When the ulcer has become free of necrotic tissue, edema and inflammation have subsided, and it is covered with healthy granulation tissue, usually a period of two to four weeks, it is time for epithelization to take place. The rubber sponge pressure treatment is continued, but instead of bacitracin ointment, Varidase ointment is used and redressing is carried out twice a week. The rapidity with which epithelization will take place under the influence of Varidase ointment is phenomenal. In one week the ulcer is often half covered with epithelium and within two weeks it may be completely healed. This of course depends on the size of the original ulcer. After treating my first case with this ointment, I could not believe that any preparation could cause such rapid healing. But after several more were treated with the same results, I became convinced that the Varidase ointment has some property which directly or indirectly stimulates rapid epithelization.

Varidase ointment is prepared in the following way. One vial of Varidase powder and 300 mg. of aureomycin powder are thoroughly mixed in about 5 gm. of lubricating jelly (Lubafax is the particular one used, although any brand would presumably be just as good). This ointment is stable for about two weeks if kept refrigerated, in contrast to water solutions of Varidase, which are stable for only a few hours.

When the ulcer is healed, appropriate measures to treat the underlying cause should be carried out. Varicose veins are the chief cause, but in some cases of long standing varices with trophic skin changes, or in cases of the post-phlebitic syndrome with edema, the patient may have to wear elastic bandages or elastic stockings permanently.

ETIOLOGY OF STASIS ULCERS

It is generally agreed that stasis ulcers are caused by a sluggish, static, or actually reversed venous blood flow in patients with varices. These changes in blood flow result in local anoxia and tissue edema, which in turn cause impairment of nutrition locally and a decreased resistance to trauma and infection. Patients frequently give a history of a minor trauma to the affected part, with the subsequent development of an ulcer. These ulcers are a type of trophic ulcer and in early cases they may be healed without any permanent damage to the skin or subcutaneous tissues. However, in more advanced cases of varices, or in the post-phlebitic syndrome, there are permanent changes consisting of pigmentation and thinning of the skin and induration and scarring of the subcutaneous tissues. There are also some trophic ulcers, i.e. ulcers with these same changes, which defy classification because there is no history or sign of varices and no history or evidence of phlebitis. Two such cases are included in the case reports to follow.

It should be emphasized that there are ulcers having an appearance similar or identical to stasis ulcers, but which are of different origin. These include luetic, tuberculous and mycotic ulcers, and ulcers caused by deficiency in arterial circulation. Occasionally malignant ulcers may stimulate stasis ulcers. Any of these types require treatment of the primary etiology before they can be cured and one must rule out these types before beginning the therapy as herein described.

RATIONALE OF THERAPY

In order successfully to treat stasis ulcers, one must have a method which will at least partially reverse the pathologic changes. It is evident that the pressure method described will eliminate edema and correct the static or reversed blood flow. An elastic bandage alone will do this to some extent, but the addition of the rubber sponge produces a greater and more uniform pressure in the area of the ulcer.

As soon as the edema is gone and blood flow corrected, the skin will improve in appearance and texture; the ulcer, which was formerly deep, will now be shallow due to the subsidence of edema; and the ulcer base will become covered with healthy granulations under the influence of debridement and bacitracin.

The addition of Varidase ointment at this point will cause rapid epithelization of the ulcer. The exact mechanism for this is not clear, but it is known that the Varidase dissolves the exudate and thereby permits more effective action of the locally applied antibiotic (aureomycin), no longer hindered in its pursuit of bacteria by a thick, impervious exudate. It is thought by some that Varidase in some way stimulates epithelization, and indeed it seems so, but this has not been proven. The importance of Varidase, however, in healing an ulcer, after the initial improvement with the pressure treatment, is brought out in the case reports. It must be emphasized that Varidase will dissolve only exudate, and not necrotic tissue, so it is no substitute for mechanical debridement. I have seen several ulcers vainly treated with Varidase when debridement was neglected, with considerable loss of time and energy, not to mention financial loss to the patient.

A final emphasis should be placed on the fact that some cases of post-phlebitic syndrome, with occlusion of the deep venous circulation, will not tolerate elastic bandages, because they occlude the only remaining circulation, which is through the superficial veins. Fortunately, I have not encountered such a patient with an ulcer, else he might have had to keep his ulcer, but I have encountered one such patient who did not have an ulcer.

One may question what advantages, if any, this method of treatment has over the use of the Unna paste boot. The latter method is indeed an effective one, but I believe it has its disadvantages. In the first place the process of applying an Unna boot is messy and time consuming, whereas the rubber sponge method is relatively quick and easy. Secondly, the Unna boot is usually left in place for one to three weeks and I doubt if the resultant continual bathing of the ulcer in its own infected exudate is as good for the ulcer as bi-weekly cleansing and debridement. Thirdly, the Unna boot has to be applied with particular attention paid to absolutely even wrapping of the bandage, else a small wrinkle may produce a new ulcer. I have seen such a case. (See Case reports).

The following three case reports are representative of the ulcers so far treated. A total of seven have been treated in the past two years, with uniformly good results.

Case 1. The patient, A. G., a 59 year old white female, had varicose veins of both legs of long standing and a bilateral post-phlebitic syndrome. Both lower legs were edematous, there were trophic skin changes, and the subcutaneous tissues were indurated. The legs were painful and the patient wore elastic bandages whenever she was on her feet. The varices were not evident except in the upper portions of the great saphenous veins, because the legs were obese and edematous. She had previously had a left high saphenous ligation with little improvement. On October 23, 1950, she had a right high saphenous ligation because of three ulcers on her right ankle. Post-operatively she was treated in the clinic twice weekly with application of various ointments and rewrapping with elastic bandages. Under this treatment two of the ulcers healed, but the third remained stationary. In March 1951, an Unna paste boot was applied and on removal three weeks later there was only slight improvement. She was again treated with elastic bandages and ointments until August 1951, with no improvement, at which time a modification of the Unna boot was applied, known as Gelocast, which is an elastic, adhesive bandage impregnated with chemicals similar to those used in an Unna boot.

On September 8, 1951 this boot was removed and the patient was seen by author for the first time. The old ulcer was healed, but there were four new ones over the back of the right ankle, resulting apparently from wrinkles in the Gelocast bandage. On September 15, 1951 the McPheeters rubber sponge pressure method was begun and in two months two of the ulcers were healed. The remaining two, the larger of which measured 3x2 cm., were shallow and covered with healthy granulations, but exhibited no tendency to epithelize. Varidase ointment was added to the treatment on November 16, 1951 and dressings were changed twice a week.

Healing was remarkably rapid and on November 30, two weeks later, both ulcers were completely epithelized.

Because of improper care by the patient and resistance to follow-up, the patient developed a recurrent ulcer twice and both times healing was satisfactory with the same treatment. At this writing she is undergoing treatment for another ulcer, this time on her left ankle.

Case 2. This patient, M. L., was a 64 year old white female admitted to the hospital on October 13, 1951, with a history of a recurrent ulcer on the medial aspect of the left ankle for twelve years, and on the right ankle for one and one-half years. Both ulcers had been present constantly since April 1951. The ulcers had been successfully treated many times, but had always recurred. There was no evidence of varices and no history of phlebitis or signs thereof. Serology was negative, fungus culture negative, culture for bacteria showed staphylococcus albus, and biopsy from one of the ulcers showed only a chronic skin ulcer. A feasting blood sugar was normal. The only systemic disease noted was a rather severe rheumatoid arthritis.

On the medial side of the right ankle was a shallow 4x2 cm. ulcer and on the left an ulcer measuring 6x3 cm. They were foul smelling had a necrotic base and a purulent exudate. The borders were irregular, indurated and reddened and there was slight edema of the ankles.

The patient was treated with warm compresses of 1:1000 aqueous zephiran chloride locally and penicillin systematically. The ulcers became clean and covered with healthy granulations, but no epithelization took place. On October 26, 1951 daily applications of Varidase ointment were begun, but no pressure dressings. In six days 50% of the ulcer surfaces were epithelized. The patient was discharged from the hospital on November 3, 1951 and instructed to apply the varidase daily herself. Further improvement was slow, so the rubber sponge pressure dressings were added on November 24, 1951. On December 8, 1951 the left leg was healed and on December 15, 1951 the ulcer on the right leg showed complete epithelization.

This patient has had no recurrence of her ulcers since that time and she keeps both legs wrapped with elastic bandages whenever she is on her feet.

Case 3. The patient, C. S., a white male, aged 70, had a history of a recurrent ulcer over the left medial malleolus since 1934. In August 1952 the ulcer was excised and a split thickness skin graft was applied. The graft sloughed out completely and the ulcer failed to heal.

He was readmitted April 2, 1953, at which time he had three partially confluent ulcers over the left medial malleolus, the largest measuring 5x2.5 cm. There was a one plus ankle edema, redness and induration around the borders, necrotic tissue at the base and a purulent exudate. The left lower leg showed trophic skin changes. There was no history or evidence of varices or phlebitis. Serology was negative and there was no diabetes.

Treatment with warm compresses of 1:1000 aqueous zephiran produced little improvement, nor did the use of a cod liver oil ointment.

On April 14, 1953 and April 16, 1953 the ulcers were dressed with bacitracin ointment and the rubber sponge pressure dressing with elastic bandage. On April 17, 1953 the edema was gone and the ulcers were clean. Varidase ointment was added to the pressure dressings and redressings were done every other day. In twelve days complete epithelization had taken place except for a small area measuring 4x2 cm. He was discharged on April 29, 1953, continuing the same treatment as an out-patient, and in two weeks healing was complete. There has been no recurrence.

This case represents a trophic ulcer with no ascertainable cause, such as varices or phlebitis, as does Case 2.

Summary

1. A method of treating stasis ulcers of the lower extremities is presented which combines the McPheeters method of a rubber sponge pressure dressing and elastic bandage, with the use of bacitracin ointment to control infection, followed by Varidase ointment to promote epithelization.

2. The etiology of these ulcers is based upon a static or reversed venous blood flow

with resultant ischemia and edema which lead to impaired nutrition locally and decreased resistance to trauma and infection.

3. The rationale of this therapy and the advantages of their method over the use of the Unna paste boot and of bed rest are discussed.

4. Three illustrative case reports are presented.

5. Seven cases have been treated in the past two years by the method described, with uniformly good results.

6. It is believed that this method of treating stasis ulcers of the lower extremities, if carefully followed, will give us good, and probably better results than any other method yet devised.

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CHONDROSARCOMA

A Case Report

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A case of chondrosarcoma arising from the 9th costochondral junction was observed and treated recently at the Memorial Hospital. It is reported because of the comparative rarity of these tumors and the interesting diagnostic possibilities entertained in this case.

N. T., a 63-year-old colored male, was admitted to the Memorial Hospital on 1/26/53. He had been under treatment since June, 1951, for hypertensive cardiovascular disease complicated by hypertensive neuroretinopathy and bilateral cataracts. The original record at the time of his first examination made note of a bony prominence present over his right 9th rib and attributed it to an old fracture at that site. The patient stated he had had a fracture of a rib in that area in 1939, but had not noticed any superficial lesion until 1949 when a small nodule appeared which slowly and progressively enlarged to its present size. In the month prior to admission the patient felt the tumor had enlarged more rapidly. The precipitating reason for his admission to the hospital was a terminal stream hematuria of three weeks' duration associated with dysuria, urgency and nocturia.

The past history was significant for known Neisserian infections in 1920 and 1930, and a fracture of the right 9th rib in 1939.

Physical examination revealed a middle-aged, well-developed colored male in no apparent distress.

Except for biliteral lenticular opacities and poor dental hygiene the head and neck examination was negative.

Examination of the chest revealed an old healed transverse scar overlying the left 6th rib, the result of a knife wound and a firm, non-tender tumor measuring 6 x 6 x 5 cm. overlying the right 9th costochondral junction. The skin was intact and easily movable over the tumor which was firmly fixed to the underlying structures.

Th heart borders were enlarged to percussion and an auricular fibrillation was present. The lungs were clear to auscultation.

A grade I prostatic enlargement was present but both lobes were smooth and compressible and the median furrow was present.

The remainder of the examination was negative. There was no palpable peripheral adenopathy.

Cystoscopy was done on 1/26/53 and except for a stricture encountered in the posterior urethra no lesion could be demonstrated. Retrograde pyelography revealed renal pelves normal in outline. Deviation of the midportion of the right ureter medially, prompted speculation on the possibility that a tumor of the lower pole of the right kidney might be responsible, but after a liquid diet for 48 hours a scout film of the abdomen revealed normal kidney outlines, bilaterally.

Roentgen examination of the chest on 1/27/53 revealed. . . . "a large tumor mass in the right anterolateral chest wall. There is some pathologic involvement of the anterior end of the right 9th rib and a fracture is present. This large mass has caused very little rib destruction at the present time and is probably invading the rib by contiguity . . . there are no metastatic lesions in the lung fields."

A skeletal survey was carried out and the following information obtained: "The lumbar spine shows no abnormality. Severe arterial sclerosis of the abdominal aorta and iliac vessels is present . . . the dorsal spine is intact. The shoulder girdles show no change . . . there is periosteal change in the lower third of the femur . . . there is a calcification in the muscles of the middle third of the right thigh . . . there is a peculiar lesion in the lower end of the left tibia. This should be re-examined by spot-films . . . re-examination reveals changes in the left ankle that seem to be the result of an old injury. Considerable traumatic arthritis is present in the ankle joint and periosteal bone proliferation has occurred in the tibia . . . there is a shadow in the lateral projection of the sella turcica which may indicate sclerosis of the internal carotid artery at the level of the carotid siphon."

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Chemistries obtained at this time were as follows: RBC 4.6; Hb 12.0; WBC 7,650 with 75% polymorphonuclears.

Urinalysis: pH5; S. G. 1.014;Alb. 2+; sugar, negative; RBC, solid field; alkaline phosphatase 3.2, B. U. N. 15, calcium 9.0, phosphorus 3.3. Total proteins 7.56. A/G ratio 1.6 — 1.0.

An electrocardiogram revealed a marked left ventricular preponderance and confirmed the auricular fibrillation.

An aspiration biopsy of the mass on the right anterolateral chest wall was reported as having "only cartilagenous material present . . . no malignant cells are seen."

With the apparent exclusion of the possibility that the tumor of the chest wall was metastatic in origin and the disappearance of the hematuria after dilatation of the urethral stricture, it was decided to treat the chest wall tumor as a primary tumor of the underlying bone or cartilage. Surgical treatment was advised and accepted. Medical consultation was obtained regarding the patient's operability and it was their opinion that any prolonged extensive procedure was contraindicated in view of his relatively poor cardiovascular status. Accordingly, the patient was prepared for surgery.

On 2/11/53, under endotracheal anesthesia, the 9th rib was initially divided in the right mid-axillary line and after incision of the pleura, examination of the pleural cavity was carried out. No metastatic disease was seen or palpated in the adjacent diaphragm, hilus of the lung, etc., but a bulging of the pleura beneath the 9th and 10th ribs was palpated which was not appreciated preoperatively. The intrapleural tumor mass measured 3 x 2 x 2 cm. Accordingly, a block removal of the tumor mass was carried out extending from the mid-axillary line to the costal margin including a wide margin of skin, fat, muscle, pleura and the 9th and 10th ribs with their cartilagenous portions anteriorly. Except for undercutting and approximation of the skin margins, no further measures were considered necessary to close this defect of the lower chest wall.

Examination of the specimen postoperatively revealed a glistening, friable, almost crumbly mass of tumor encased by a definite capsule anteriorly with the skin freely moveable over it. Invasion of the ribs had occurred with the tumor eroding through the ribs and bulging the underlying pleura.

Microscopic examination "shows the tumor to be made up of atypical cartilage calls lying in a hyaline type of matrix. The tumor is fairly well differentiated . . . chondrosarcoma."

The patient's postoperative course was satisfactory and he was discharged on the 12th postoperative day.

It is appreciated that the treatment of choice is the complete removal of the ribs involved plus one or two above and below those involved. However, the patient was considered a poor operative risk and this restricted any procedure more extensive than the one accomplished.

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ERYTHROMYCIN IN THE TREATMENT OF PNEUMOCOCCAL PNEUMONIA

A. E. Bacon, Jr., M. D.*
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Erythromycin** is an antibiotic produced by certain strains of *Streptomyces erythreus* and is described by McGuire and others.[1] It is administered only by the oral route and except for nausea, vomiting or diarrhea, there have been no reports of toxicity.[2] There is laboratory and clinical evidence that it is effective in infections caused by many gram positive bacteria, including hemolytic streptococcus, *Staphylococcus aureus*, and pneumococcus.[1, 2, 3, 4]

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**Erythromycin used in this study was generously provided to us by the Lilly Research Laboratories through the courtesy of Dr. J. W. Smith. The trade name adopted for this antibiotic by Eli Lilly and Co. is "Ilotycin."

Pneumococci have been demonstrated *in vitro* to be sensitive to erythromycin in concentrations from 0.009 to 0.09 micrograms of erythromycin per milliliter. Haight and Finland[3] tested 58 strains and found minimum complete inhibitory concentrations for two-thirds of the strains to be 0.04 micrograms per milliliter.

Therapeutic blood levels in concentrations of one to twenty micrograms of erythromycin per milliliter have been demonstrated,[2, 4] and there is a rough correlation between the maximum blood level and the dose. A peak is reached between one and two hours with a rapid decline between the fourth and sixth hours.[4] Simultaneous administration of sodium bicarbonate does not affect absorption.[4] Erythromycin is rapidly destroyed in an acid media. By using tablets coated with an acid-resistant alkali-soluble material, a slower but higher blood level is usually reached, even in the non-fasting person.[2]

Smith and others[2] treated 8 cases of lobar pneumonia and isolated a pneumococcus from the sputum of 7 cases. Four of these cases also had pneumococcal bacteremia. Dosage employed was 300 mgs. or 500 mgs. every 6-8 hours. Six cases showed a rapid favorable response although a slow resolution of the pneumonic process occurred in 3 cases. A secondary infection with *Klebsiella pneumoniae* occurred in the remaining two cases, one of which expired. Treatment with another antibiotic was necessary for this complication.

Haight and Finland[3] treated 41 patients, including 15 cases of pneumococcal lobar pneumonia. There were 4 cases with bacteremia, two of which expired. One case had a massive hemorrhage from a gastric ulcer and the other case, after being acutely ill for two weeks, died on the second day of therapy. The 11 non-bacteremic patients showed a rapid favorable course, with subsidence of fever and symptoms in twenty-four hours. Pneumococci were absent from the sputum in all cases by the third day, and no specific organism replaced the pneumococci in the sputum. Dosage schedules were varied and most of the cases received 5 to 8 gm. in 4-8 days.

Haight and Finland[3] state that the clinical effects of erythromycin in the 16 cases were essentially similar to those observed with sulfadiazine, penicillin, or the broad spectrum antibiotics. Although erythromycin has been used in relatively few cases, Smith[2] says that it is at least moderately effective in the treatment of pneumococcal pneumonia.

This paper is presented to show the effect of erythromycin in the treatment of 8 patients with lobar pneumonia due to the pneumococcus.

Method

All patients admitted to the Medical Ward Service of the Delaware Hospital with a diagnosis of pneumonia were routinely treated as follows: after the initial admission examination, bacteriologic cultures were made of the nasopharynx, sputum and blood. Erythromycin was then started according to one of three dose schedules (see below). Chest x-ray, complete blood count, and urinalysis as well as additional indicated laboratory studies were obtained within 12 hours of admission. Daily urinalysis was done. The patients were seen at least once daily by the author, and therapy was modified according to general requirements of the individual patient.

Two patients were stuporous or vomiting and were not considered suitable for oral medication. These 2 patients were treated with another antibiotic and are not included in this series. All other patients with a clinical, x-ray, and bacteriologic diagnosis of pneumococcal pneumonia are included in this series.

Sensitivity of each pneumococcus to erythromycin was established by disc-plate technique[5] and the minimum inhibitory concentration of erythromycin was determined by a serial two-fold dilution technique ranging in concentration of 0.5 to 0.0003 micrograms of erythromycin per milliliter.

A specimen of blood was drawn from each

patient on admission and specimens of blood were obtained at various time intervals during therapy as indicated in Table II. The serum was separated and frozen at minus 5° C. until used. Two-fold serial dilutions of the serum were made and each tube was inoculated with an equal volume (0.5 ml.) of a 1:100 dilution of an 18 hour tryptose phosphate broth culture of the pneumococcus isolated from the patient according to a modification[6] of the technique of Schlichter.[7]

Case Findings

All cases had initial temperature of 102° F. or greater. White blood cell counts on admission ranged from 8,000 to 30,000 (with five above 20,000), and in each case there was a marked shift to the left in the differential smear. Seven cases had positive sputum cultures for pneumococcus, two of which had positive blood cultures for pneumococcus. One patient who produced no sputum had a positive nasopharyngeal culture for pneumococcus.

The dosage schedule and the clinical course of each patient are shown in Table 1.

TABLE 1

Pneumococcal Pneumonia Treated With Erythromycin

Case	Age	Site	Pneumococcus Type	Blood Culture	Dosage	Days of Treatment	Return to Normal Temperature	Hospital Days	Remarks
1	24	RLL	14	Negative	400 mgs every 6 hours	6	30 hours	9	Erythromycin stopped, penicillin started on third day.
2	20	LLL	14	Positive	400 mgs. every 6 hours	8	30 hours	10	None
3	40	LLL	3	Negative	400 mgs. every 6 hours	24	16 days	26	Delayed Resolution
4	50	LLL Empyema	3 1	Negative Negative	400 mgs. every 6 hours	8 28	30 hours	40	Pneumococcus type 3 isolated (nasopharynx) on admission. Pneumococcus type 1 isolated on 15th day. Penicillin therapy started on 17th day.
5	52	RUL	1	Negative	400 mgs. initial 200 mgs. every 6 hours	9	30 hours	14	Chest x-ray normal in 24 days.
6	69	RML	1	Positive	400 mgs. initial 200 mgs. every 6 hours	17	7 days	22	Delayed resolution
7	35	RLL	1	Negative	200 mgs. initial 100 mgs. every 4 hours	9	30 hours	14	None
8	59	RLL	3	Negative	200 mgs. initial 100 mgs. every 4 hours	6	6 hours	7	None

Five patients had a rapid return to normal temperature, relief of symptoms and an uncomplicated recovery. Hospitalization varied from 7 to 14 days in this group, and chest x-ray was normal on discharge in 4 of these patients, the fifth patient clearing uneventfully as an out-patient. In Case 1, there was a considerable clearing of the pneumonia in three days with symptomatic relief. However, urinary albumin increased from 1+ to 4+, and finally granular casts appeared on the second day. The possibility of a nephrotoxic effect of the antibiotic was considered, and therapy with erythromycin was stopped on the third day, at which time albuminuria was diminishing. Penicillin was given for three additional days.

There were two patients with delayed resolution. In Case 3 small loculated areas of effusion developed which cleared without aspiration by the 26th hospital day. In Case 6, in whom pneumococcal bacteremia had been present, some infiltration remains in the previously consolidated area ten weeks after admission and further studies are in progress on this case in the Out-Patient Department.

Case 4 is of sufficient interest to be presented in detail:

A 50 year old male was admitted with the diagnosis of pneumonia of the upper segments of the left lower lobe. He had had chest pain and cough for four days prior to admission. A pneumococcus type 3 was isolated from the nasopharynx, sensitive to erythromycin in a concentration of 0.0003 micrograms per ml. He had no sputum and blood culture showed no growth. He received 400 mgs. of erythromycin every six hours for eight days. His temperature returned to normal in thirty hours. His admission white blood cell count of 26,000 with a marked increase in percentage of polymorphonuclear leucocytes gradually fell to 14,000, with percentage of polymorphonuclear leucocytes less marked. His lungs cleared progressively by physical examination and chest x-ray evidence, and the pneumonia was considered fairly well resolved at the time of discontinuation of erythromycin.

TABLE 2

Minimum Inhibitory Dilution of Serum Against Pneumococci

					Minimum Serum Dilution Showing Inhibition of Pneumococcus						
			Sensitivity to Erythryomycin		Hours After Initial Dose				Hours After Multiple Doses		
Erythromycin Dosage	Case	Pneumococcus Type	in Micrograms Per Milliliter	On Admission	2	3	4	6	3	4	6
400 mgs. every 6 hours (Capsules)	1	14	0.03								1:64
	2	14	0.015	0		1:128		1:64			
	3	3	0.003	0		1:64		1:32			1:64
	4	3	0.0003			1:128		1:32	1:128		1:128
	4	1	63.0					0			
400 mgs. initially 200 mgs. every 6 hours (tablets)	5	1	0.008	0	1:264		1:28	1:64			
	6	1	0.002	0						1:128	1:128
200 mgs. initially 100 mgs. every 4 hours (tablets)	7	1	0.002	0						1:264	
	8	3	0.008	0						1:4	

Over the next five days signs of pulmonary consolidation increased and he again developed fever and leukocytosis. Chest x-ray twelve days after admission demonstrated an empyema. Erythromycin therapy was reinstituted. The initial aspiration of the empyema two days later yielded a purulent exudate which when cultured showed a pneumococcus type 1, not previously isolated, resistant to erythromycin by the disc technique, and resistant in a concentration of 63 micrograms per milliliter by tube dilution of erythromycin. This pneumococcus type 1 was demonstrated to be sensitive to penicillin by the disc technique. Erythromycin was stopped, and penicillin was substituted. Local treatment of the empyema included frequent aspiration with instillation of penicillin and Varidase.* He was discharged on the fortieth hospital day with essentially normal chest x-ray.

Bacteriologic Findings

Pneumococci were not obtained on sputum culture of any patient after 48 hours of treatment. Table 2 illustrates the minimum inhibitory dilution of the serum against the pneumococcus isolated from each case.

It is apparent from this data that a highly effective serum concentration of erythromycin was attained in seven cases. In Case 8, this single determination is satisfactory evidence of an effective antibiotic level by the criteria of Schlichter.[7] The pneumococcus type 3 isolated from the nasopharynx of Case 4 is probably of no significance in view of the complication produced by a different organism (pneumococcus type 1).

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*Varidase is the registered trademark employed by Lederle Laboratories for Streptokinase-streptodornase.

Discussion

This series of cases is too small to justify significant conclusions, and results are essentially similar to those reported by Smith and others.[2] and Haight and Finland.[3] Of significance is the demonstration of a resistant pneumococcus appearing in Case 4. This patient had an initially favorable response which suggests that the pneumococcus type 1, though not isolated on admission, was sensitive to erythromycin.

Resistance of the organism developed during therapy with erythromycin in: one case of subacute bacterial endocarditis due to *Streptococcus salvarius* (2), two cases of staphylococcal endocarditis (3), and one case of subacute bacterial endocarditis due to *Streptococcus mitis* (4).

In addition, Heilman[4] reported development of resistance of *Staphylococcus aureus* in osteomyelitis, and Smith[2] reported development of resistance of hemolytic streptococci in an abscess of the jaw. Needham and Nichols[8] reported development of resistance of two strains of *Staphylococcus aureus* during therapy. This is ample evidence that an initially sensitive organism may readily develop resistance to erythromycin during therapy.

The only toxic effect of erythromycin observed in this series was a transient diarrhea in one case which was alleviated with symptomatic therapy, without discontinuing the antibiotic. A dose of erythromycin in capsules occasionally produced nausea, but nausea was not found to be associated with administration of tablets.

It is not known whether the albuminuria and cast formation of Case 1 was due to erythromycin or to the toxicity associated with pneumonia. Other investigators have not found renal toxicity to occur in association with erythromycin.[9]

Capsules of erythromycin were discontinued when coated tablets became available. Ease of administration as well as lack of nausea was noted with erythromycin tablets. Adequate serum inhibitory concentrations were achieved with each of the three dosage schedules. A dose of 200 mgs. every four or six hours would seem adequate, although this series is too small to recommend an optimal dosage schedule in the treatment of pneumonia.

The author is indebted to Dr. W. J. Holloway for the preparation of this study, to Dr. A. J. Morris for guidance in the clinical aspects of this series, to E. G. Scott for guidance in bacteriologic aspects of this paper, to Jeanette Shannon for technical assistance in bacteriology, and to the Visiting and House Staff of the Medical Department of the Delaware Hospital for their cooperation with this study.

Summary

1. Eight cases of pneumococcal pneumonia treated with erythromycin are presented. Five cases had a prompt response and an uneventful recovery. Two cases had rather delayed resolution, and one case developed empyema.
2. A case is presented in which an erythromycin resistant pneumococcus was isolated during therapy.
3. Inhibitory serum concentrations of erythromycin are demonstrated.

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HESPERIDIN-C IN THE CONTROL OF EDEMA RELATED TO CARCINOMA

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Edema and ascites are often distressing symptoms in an individual with extensive inoperable or recurrent carcinoma. On occasion these conditions limit the activity of such a person when other factors might permit a more nearly normal existence for a longer time. A medication which would reduce the rate of development of edema and ascites would be beneficial. The loss of essential substances in the edema fluid, and the mechanical distress associated with the accumulation of fluid, would be reduced. Progressive edema, when it involves essential tissues, promotes a vicious cycle.

Edema production in carcinomatous patients is the result of many factors, among which are infiltration of lymphatic and venous channels, mechanical pressure on vessels by tumor masses, low tissue and serum protein, and local action on capillary and lymphatic walls by a hypothetical toxic product released by malignant cells. The pressure of such a substance is indicated by an increase in the permeability and by a reduction of the adhesiveness of the intercellular substance of malignant cells.

In this study an attempt was made to reduce fragility and permeability in patients suffering from edema and ascites produced by a malignant lesion. Of the substances available, hesperidin, a flavanone glycoside, combined with ascorbic acid in equal proportions, seemed to give the greatest promise.*

The successful use of hesperidin for the clinical management of lowered capillary resistance has been reported by a number of investigators. Uniformly successful results were obtained by Scarborough[1] with pure hesperidin, with crude hesperidin, and with soluble citrin in the treatment of a number of cases of lowered capillary resistance from generalized vitamin deficiency. Morii[2] found that the administration of 30 mgm. of hesperidin daily decreased capillary permeability and increased capillary resistance in various clinical cases suffering from pleurisy, tuberculosis, Grave's disease, and beriberi. The curative effect of hesperidin in cases of toxic purpura and of toxic erythemas was demonstrated by Horne and Scarborough.[3] Rheumatic fever patients, according to Rinehart,[4] showed improvement in the clinical manifestations of the disease when treated with hesperidin. Griffith and Lindauer[5] reported that hesperidin and its methyl chalcone restored capillary fragility to normal in 85 per cent of hypertension patients with increased capillary fragility.

Clinical evidence tends to establish the effectiveness of hesperidin in correcting abnormal vascular integrity; however, this effectiveness can apparently be enhanced by giving vitamin C simultaneously. Rusznyak and Szent-Gyorgi[6,7] postulated that cellular vitamin C was accompanied by a substance of similar importance and related activity, and found this substance (hesperidin) associated with capillary permeability. Warter et al.[8] believe that hesperidin is essential for the absorption and retention of vitamin C, and that the two substances act interdependently in maintaining normal capillary resistance. These investigators found Hesperidin-C an effective combination in correcting capillary fragility and permeability in rheumatoid arthritis[8, 9] In a series of cases showing clinical manifestations of lowered capillary resistance and increased capillary permeability, Selsman and Horoschak[10] found Hesperidin-C to be effective in correcting the abnormalities. They postulated that hesperidin is essential to combine vitamin C with a protein fraction to form intercellular cement substance for the maintenance of normal vascular integrity. The administration of large doses of ascorbic acid and hesperidin resulted in considerable improvement in the ecchymotic lesions, and the pain they were causing, in almost all of 26 cases of leprosy treated by Mom.[11] Barishaw[12] reported that lowered capillary resistance can be successfully treated with adequate doses of Hesperidin-C.

Twenty-four patients with inoperable or recurrent carcinomas of intra-abdominal origin were selected for study. All had extensive edema or ascites. Each was given three tablets containing 50 mgm. hesperidin and 50 mgm. of ascorbic acid four times a day. Because some of the patients were followed for as long as fourteen months, it is obvious that there were changes in the diet and salt intake, and that other medications were given. At various intervals 10 patients received testosterone because it reduced their pain. Hesperidin-C was substituted, with the diet and salt intake kept as constant as possible during comparative periods of evaluation. For a limited time 16 patients received mercurial diuretics, which gave moderate temporary relief to 4 but soon lost effect.

Ascites was the most prominent symptom in 10 patients, all of whom showed some improvement with the medication. Two patients that previously required bi-weekly paracentesis were completely controlled by the combination of hesperidin and vitamin C. The rate of development of ascites was reduced by more than one-half in all patients. A reduction in the feeling of abdominal compression was noted by all within forty-eight hours.

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*Hesperidin-C: Supplied by Steven Horoschak, Medical Research Department, National Drug Company, Philadelphia 44, Pa.

Ankle and leg edema constituted the chief complaint in fourteen patients. Two patients stopped the medication after a two weeks' trial because of no improvement. Six patients showed an excellent result with edema appearing only in the late evening, after many hours of walking. Two patients, who had been in bed 80% of the day with marked sacral and leg edema, were able to remain out of bed 60% of the day, and showed only low ankle edema. The level of edema dropped from the knee to the ankle in two patients who were ambulatory twelve hours of the day.

COMMENT

It is remarkable that greater physical comfort and improved sense of well-being were experienced by 22 of 24 patients receiving Hesperidin-C. Whatever the mechanism of action, any medication that advances the comfort of patients with advanced malignant lesions is of value. Objectively, there was some improvement in all but two of the patients. In 12 of the 24 patients there was an improvement in the ambulatory status. Edema reduction, with concomitant improvement in nutrition and function, prolongs the time during which these patients can get about and can be self-sufficient.

This preliminary report is offered so that other investigators may try Hesperidin-C in similar conditions to evaluate its ability to reduce edema.

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MISCELLANEOUS

Secretary's Letter No. 266 Sept. 11, 1953

Says Dr. Lull

Many of you, like myself, must have read this recent press association story with raised eyebrows:

"DENVER — President Eisenhower went to an osteopath Friday for treatment of a sore arm that has bothered him for nearly a month."

The third paragraph of the story said he was accompanied by his personal physician, Dr. Howard M. Snyder.

Delaware Academy of Medicine

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I urge your continued use and support of your Academy of Medicine.

Sincerely Yours, Lemuel C. McGee, M. D.
President

Editorials

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Vol. 25 October, 1953 No. 10

The Home Folks Agree

Our September editorial, "Lowering the Standards," showing the lamentable drop in the standards of medical licensure in the State of New York, was published with a modicum of fear that we were, in a fashion, merely a voice in the wilderness, perhaps a lone voice. Not so! Since our publication, we are now beholding article after article and editorial after editorial taking the same note of censure and sympathy that we took. Witness this editorial from the New York State Journal of Medicine for October 15, 1953:

> ### *Medical Education*
>
> On July 1, 1953, "the educational requirements for internship," which have long been a part of the present New York State education law, were amended to allow hospitals to appoint interns without regard to their educational background whatsoever. Not only does the new law permit the employment of interns with questionable medical training, but also State and municipal hospitals may obtain residents on the same basis.
>
> This amendmen does more than to lower preexisting medical standards; it abrogates them. The committee which studied the intern problem in the State and which made the recommendations upon which the new law is based was composed of representatives, among others, of members of the hospital councils of the State and of Greater New York and the medical schools. The latter were outnumbered and, with one particular exception, were nonvocal.
>
> Thus their recommendations reflect to a large extent the point of view of hospital administrators. These latter were faced with a pressing and seemingly insolvable problem. There are slightly more than 5,600 approved internships and residencies in the State of New York. The internships are only about 50 per cent filled, and many hospitals obtained none for the current year. The intern deficit is not only a local but a national phenomenon. It stems from two sources, namely, that the number of positions far exceeds the number of graduates and the demands of the armed services have eliminated the two-year internship. The committee was told, and it was generally agreed by the representative administrators, that many institutions would be forced to curtail their services were a way not found to provide interns. Furthermore, the committee was quite well aware of the fact that the old law which required that an intern be a graduate of an approved school was not being enforced. Thus the motivation and excuse for its abolition existed. A ready supply of man power to fill the void could be found among graduates of the unapproved Latin, South American, Continental, and Asiatic schools. Many such graduates were already employed in open violation of the existent law. This was the easy answer, and it is not surprising that it was forthcoming. Under the guise of a graduate medical education program it assumed an international, nonisolationist cloak of respectability.
>
> Thus the Legislature has given a pragmatic answer to the very difficult problem of supplying the hospitals with cheap medical labor. In so doing, as is often the case with pragmatism, standards have been sacrificed. The internship is now part of the American medical scene. In the beginning it was designed as a supplemental year of practical medical education. Because of its nature but definitely as a corollary, the internship furnished patient service without very much cost. Unfortunately, we now face a situation where in many instances service has become the predominant issue. Hospitals say they cannot function without such labor, nor can they afford to pay for value received except through their educational programs.
>
> Unfortunately the degree of M. D. does not miraculously bestow the qualifications of a medical teacher upon its recipient. Real educators in this field as in all fields require special talents and training. They are rare and equally so are the desirable graduate medical educational programs. Our own graduates choose those internships whose programs furnish really advanced educational opportunities. Such programs in themselves are expensive and are usually, although not always, associated wth centers of medical learning. Patient service is present even in these but is of secondary import. Close supervision, often described in graduate programs, does not alone furnish medical education of ad-

vanced quality any more than close supervision by the average public accountant would yield graduate opportunities in the field of mathematics.

The Legislature, faced on the one hand with the demand on the part of the hospitals for cheap labor and on the other with the failure of our own graduates to be enticed by "educational opportunities" of doubtful value, has furnished an answer of opportunism. To achieve this, past standards have been eliminated. That the old law was not enforced can be no possible excuse, nor is it conceivable that unrealistic educational programs can be of any great benefit to foreign physicians whose basic medical training is so faulty as to preclude any possibility of licensure. We must face reality and admit that failing to find sufficient interns from our own schools, we have now embarked on a course of exploitation of foreign graduates. Once these graduate recognize this fact, our foreign relations will have been poorly served indeed.

Some day we must come to grips with the basic problem and furnish the general run of hospitals with the type of help they require at a cost they can afford. There are not now, nor will there be, sufficient qualified graduates to fill all the internships. The use of unqualified graduates is at best a temporary measure of expediency. A survey should be made of the type of service needed. Perhaps it is largely technical and under close supervision might be furnished by properly qualified and trained nurses or special technicians.

It is hoped that in the future legislators will be better and more thoroughly advised. Medical standards are of long and difficult achievement. Their relaxation means public suffering. Let us neither sacrifice them to expediency nor with lofty idealism ignore the plight of our hospitals but rather, with thought, wisdom, and foresight, attempt to solve our basic problem.

Delaware Academy Of General Practice

The Delaware Academy of General Practice will hold its second annual Scientific Session on Saturday, 12 December 1953, at the Delaware Academy of Medicine auditorium. We have been fortunate to secure the following excellent speakers:

Dr. Herman K. Hellerstein, of Cleveland, Ohio, (the William Urie Memorial Lecture); Dr. James L. A. Roth, of University of Pennsylvania Graduate School; Dr. Meyer Naide, of University of Pennsylvania; Dr. A. Lee Lichtman, of New York Postgraduate Medical School; Dr. Jacob J. Weinstein, of George Washington University; Dr. Donald Stubbs, of George Washington University; Dr. Thomas Durant, of Temple University; Dr. Elmer Hess, of Erie, Pennsylvania.

The Scientific Session will start at 10:00 a.m. promptly, and each speaker will be allotted 30 minutes to present his paper followed by 10 minutes of discussion.

The business meeting of the Delaware Academy of General Practice will start at 9:00 a.m. promptly, for election of officers for 1954. Luncheon will be served in the library for those who wish to attend.

At 7:30 p.m. Dinner will be served at the Brandywine Country Club as the Annual Subscription Banquet and Ball. Dr. John S. DeTar, Speaker of the House of Delegates of the American Academy of General Practice, will be the guest speaker at the banquet. Dancing will follow until 1:00 a.m.

Tickets for the Banquet and Ball may be obtained from Dr. Harold A. Tarrant, 1315 West 9th Street, Wilmington. The subscription is $15.00 per couple, and since the capacity of the Brandywine Country Club is limited, tickets will go on a "first come, first served" basis.

If you have attended any of the functions of the Delaware Academy of General Practice in the past you can expect as fine a program and as wonderful a dinner and party as can be obtained.

BOOK REVIEW

THE EPIDEMIOLOGY OF HEALTH. A New York Academy of Medicine Book. Iago Galdston, M. D., Editor. Pp. 197. Cloth. Price, $4.00. New York: Health Education Council, 1953.

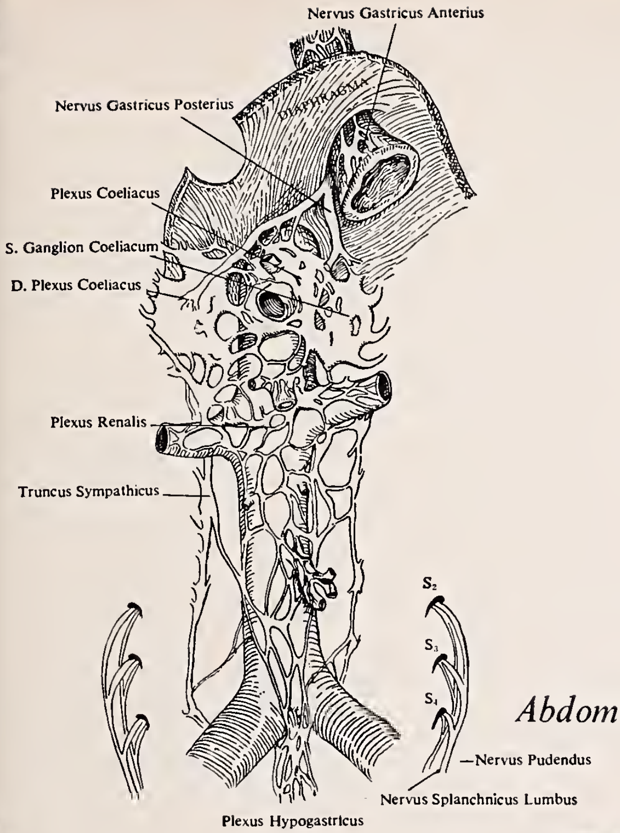
This very enlightening book gives a new public health orientation concept which is based on the present trends in health thinking and practicing. The material is based on the Eleventh Annual Eastern States Health Education Conference.

The application of this concept of the "epidemiology of health" in clinical medicine, in public health, and in health education will yield effective results if the principles elaborated in the fifteen chapters of this book are applied in the propagation of health.

Several authors discuss the evolution of the epidemiology of health as contrasted to the epidemiology of disease, and point out how it is practiced in the armed forces, in industry, in medical practices, in education, and in the control of such public health problems as tuberculosis, mental hygiene, and nutrition.

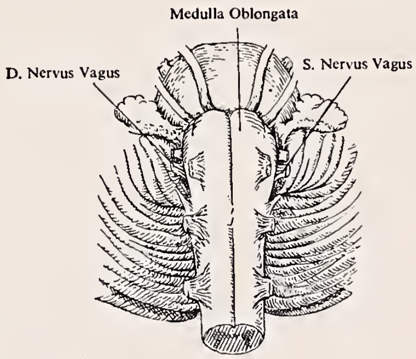
The material is well organized, very frankly presented, and the theme of the book is well emphasized, so that the reader realizes that "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

This book is highly recommended to physicians and medical students, as well as to public health workers.



Abdominal autonomic plexus (sympathetic)

Central origin of the vagus nerves (parasympathetic)



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1. Zupko, A. G.: Pharmacology and the General Practitioner, GP 7:55 (March) 1953.
2. McHardy, G. G., and Others: Clinical Evaluation of Methantheline (Banthīne) Bromide in Gastroenterology, J.A.M.A. *147*:1620 (Dec. 22) 1951.

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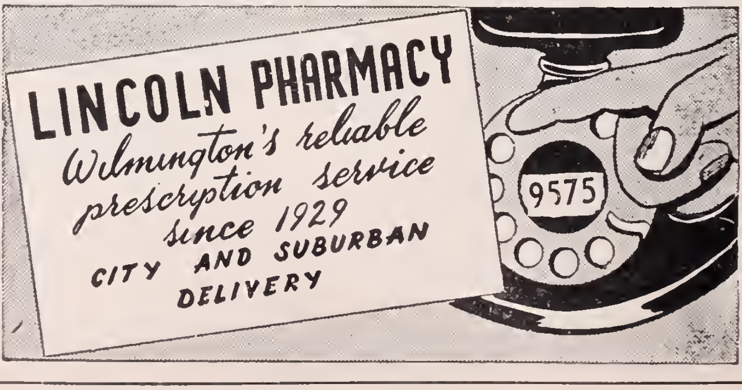

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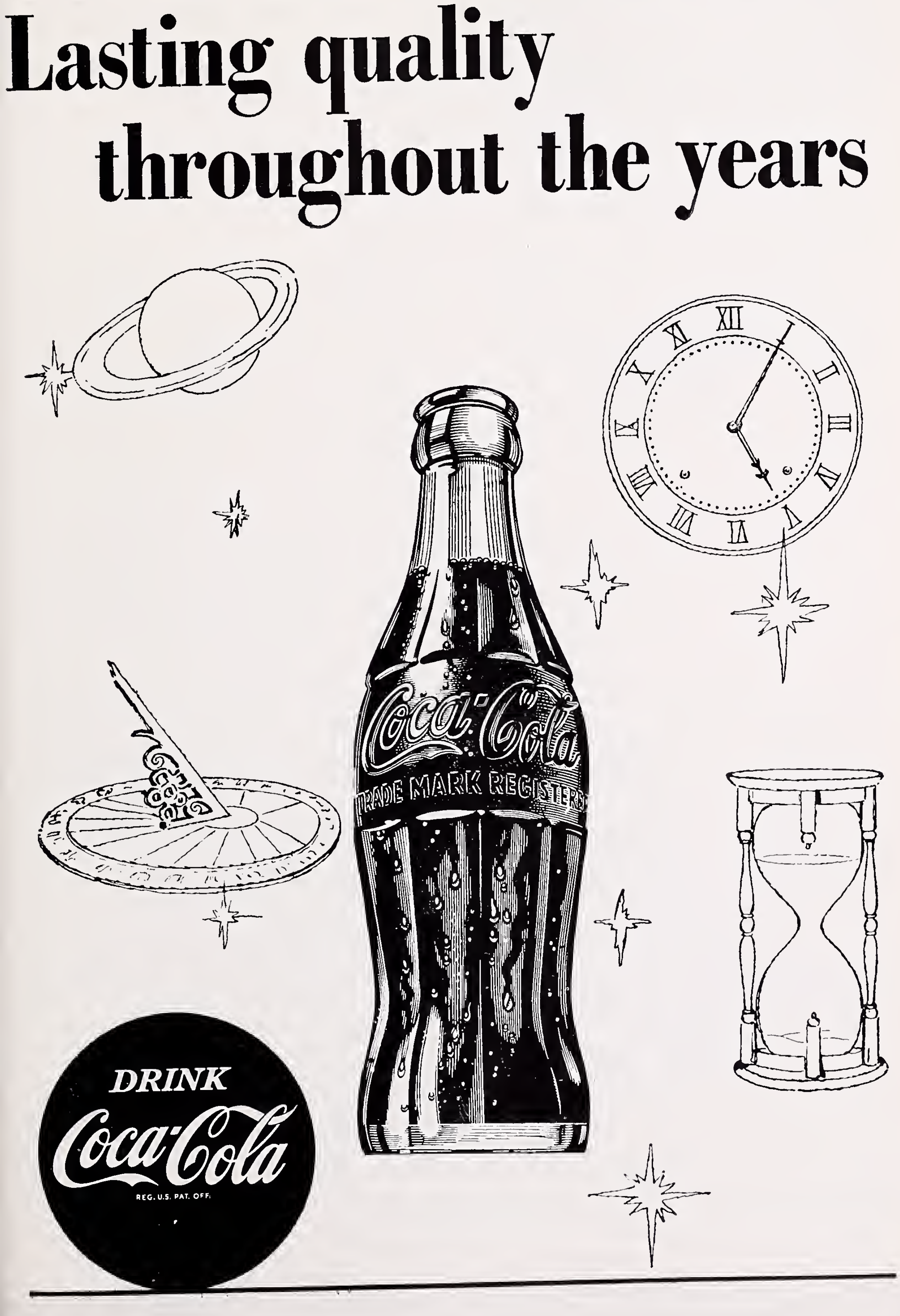
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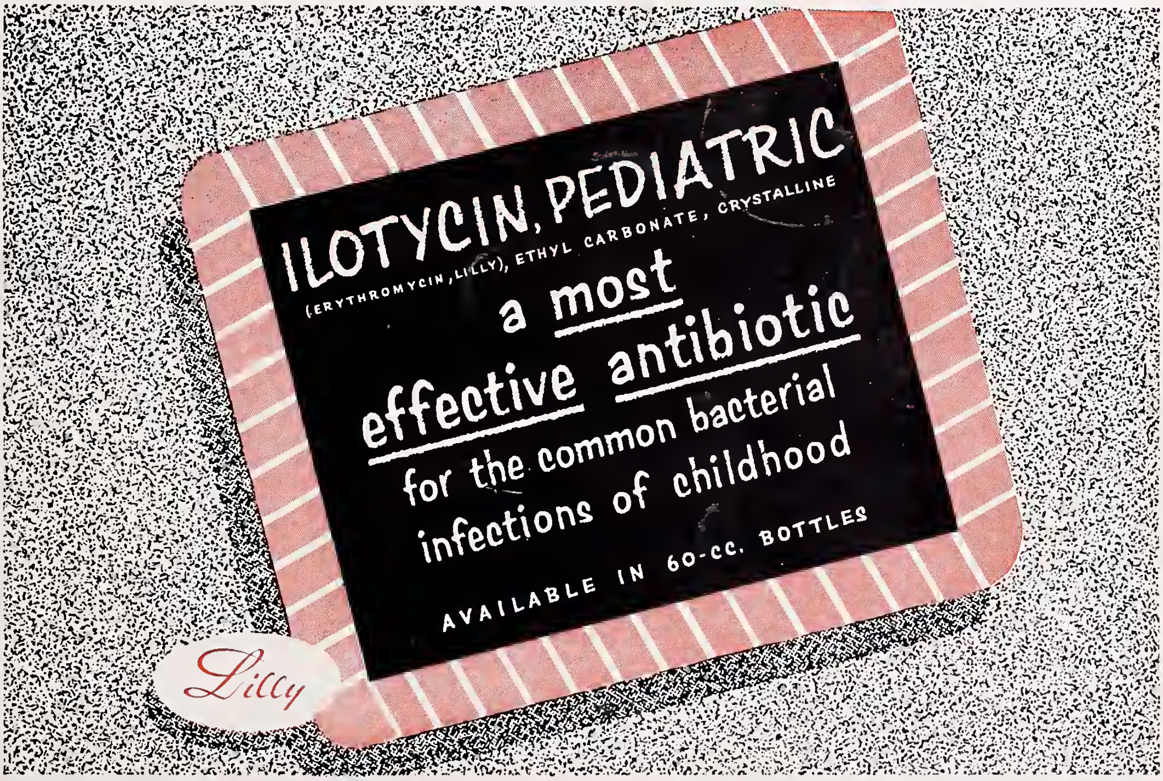
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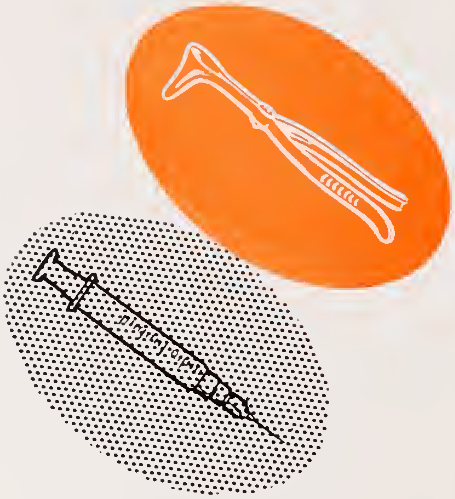

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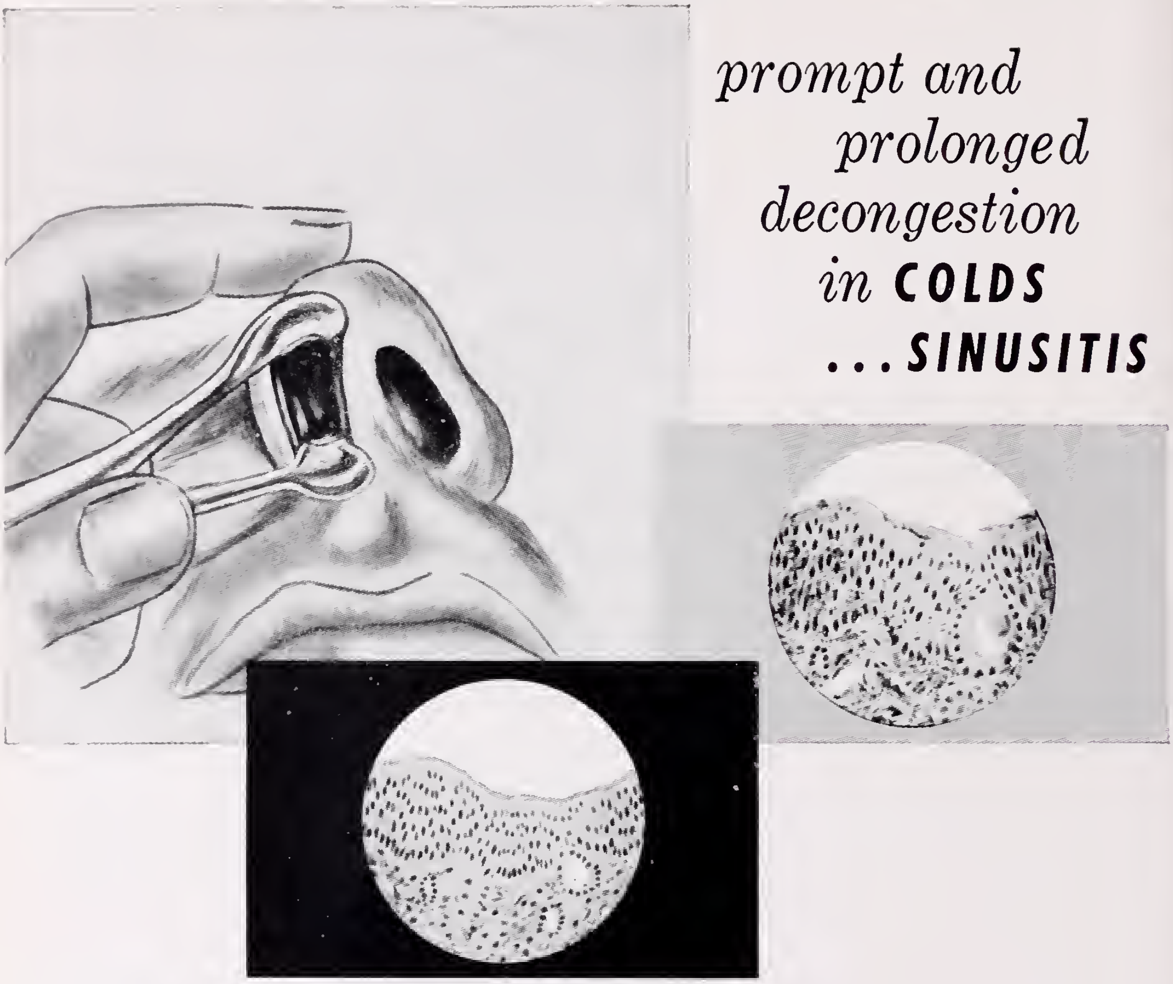

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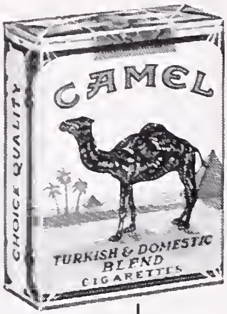

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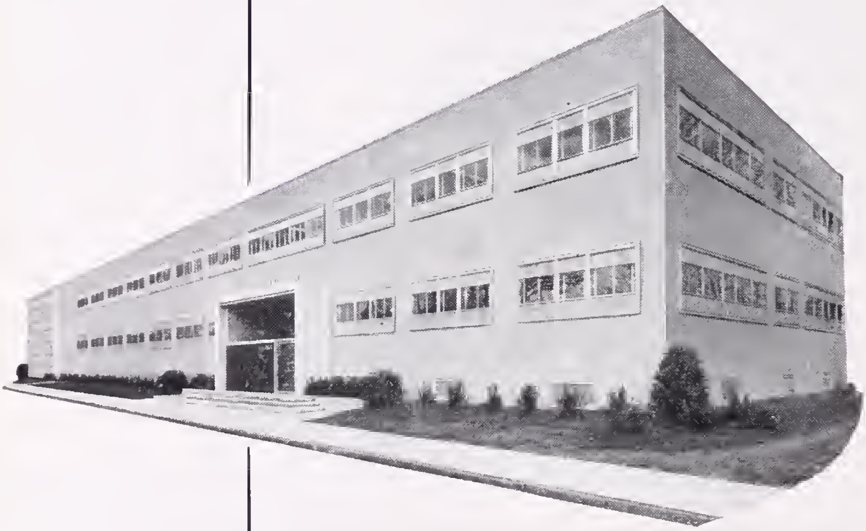

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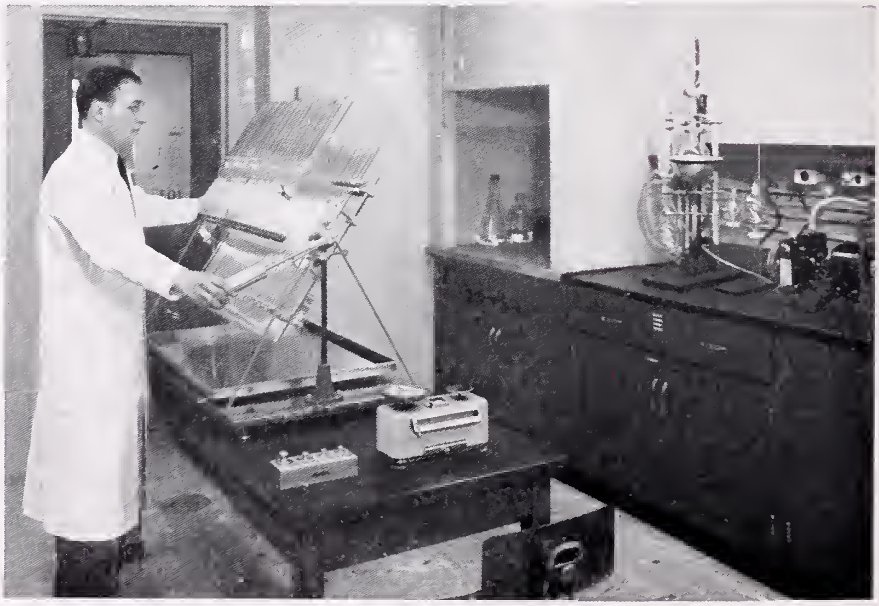

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1. Drabkin, D. L.: Metabolism of Hemin Chromoproteins, Physiol. Rev. *31*:345 (1951).
2. The Biosynthesis of Hemoglobin, Editorials, J.A.M.A. *150*:1223 (Nov. 22) 1952.

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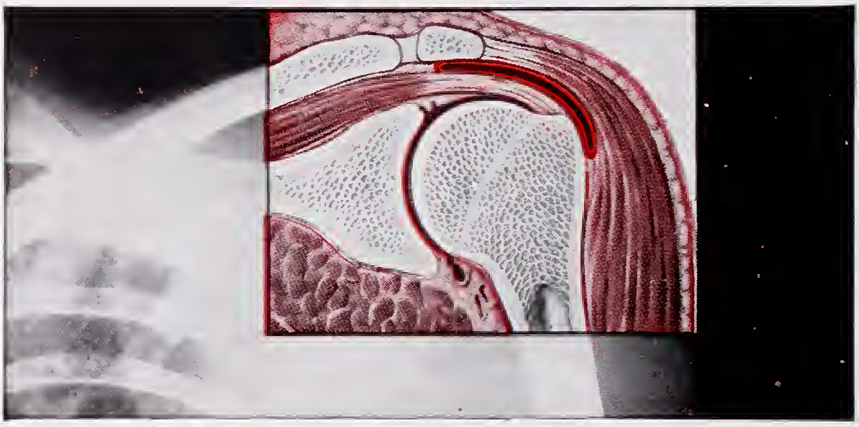

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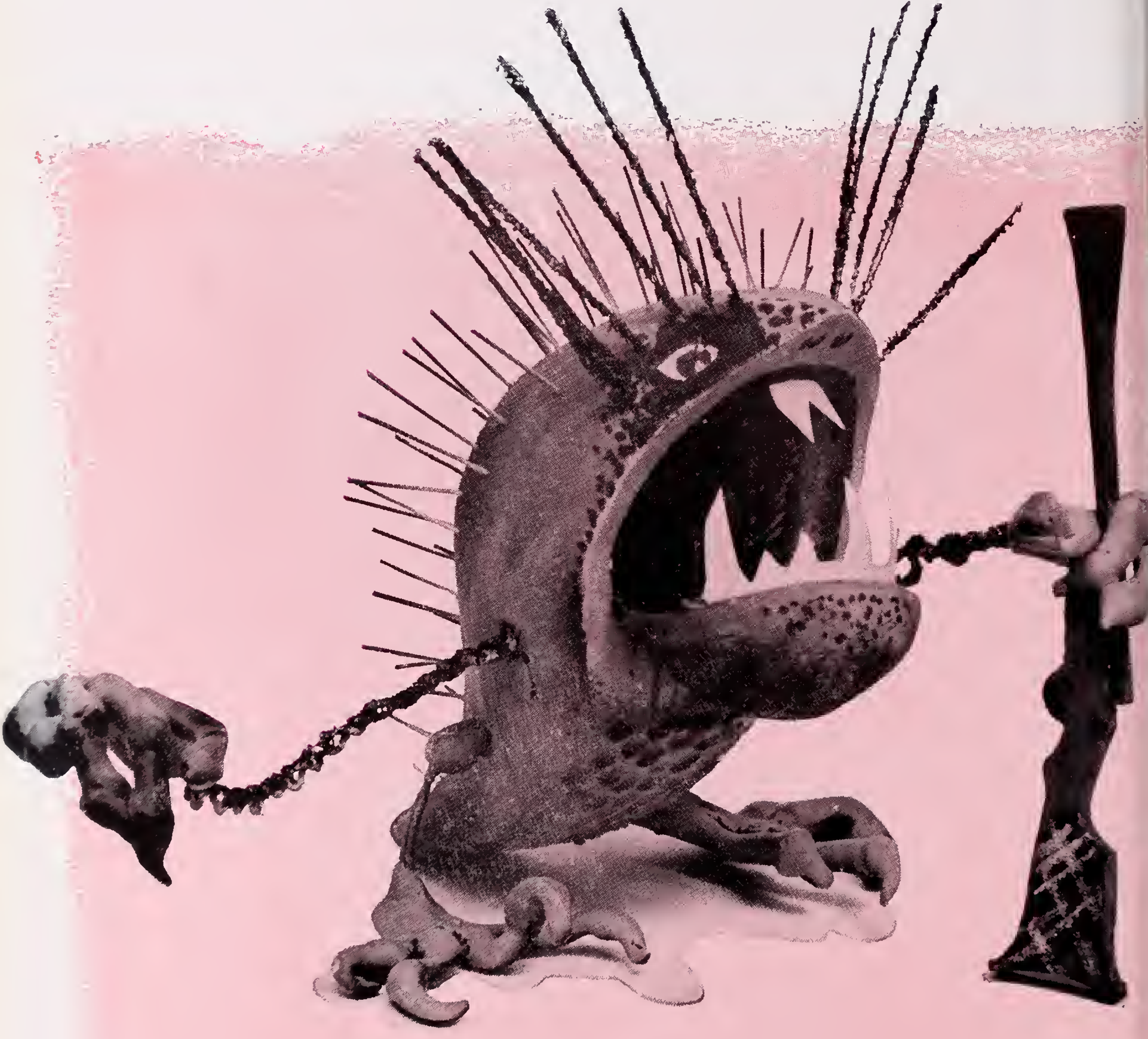

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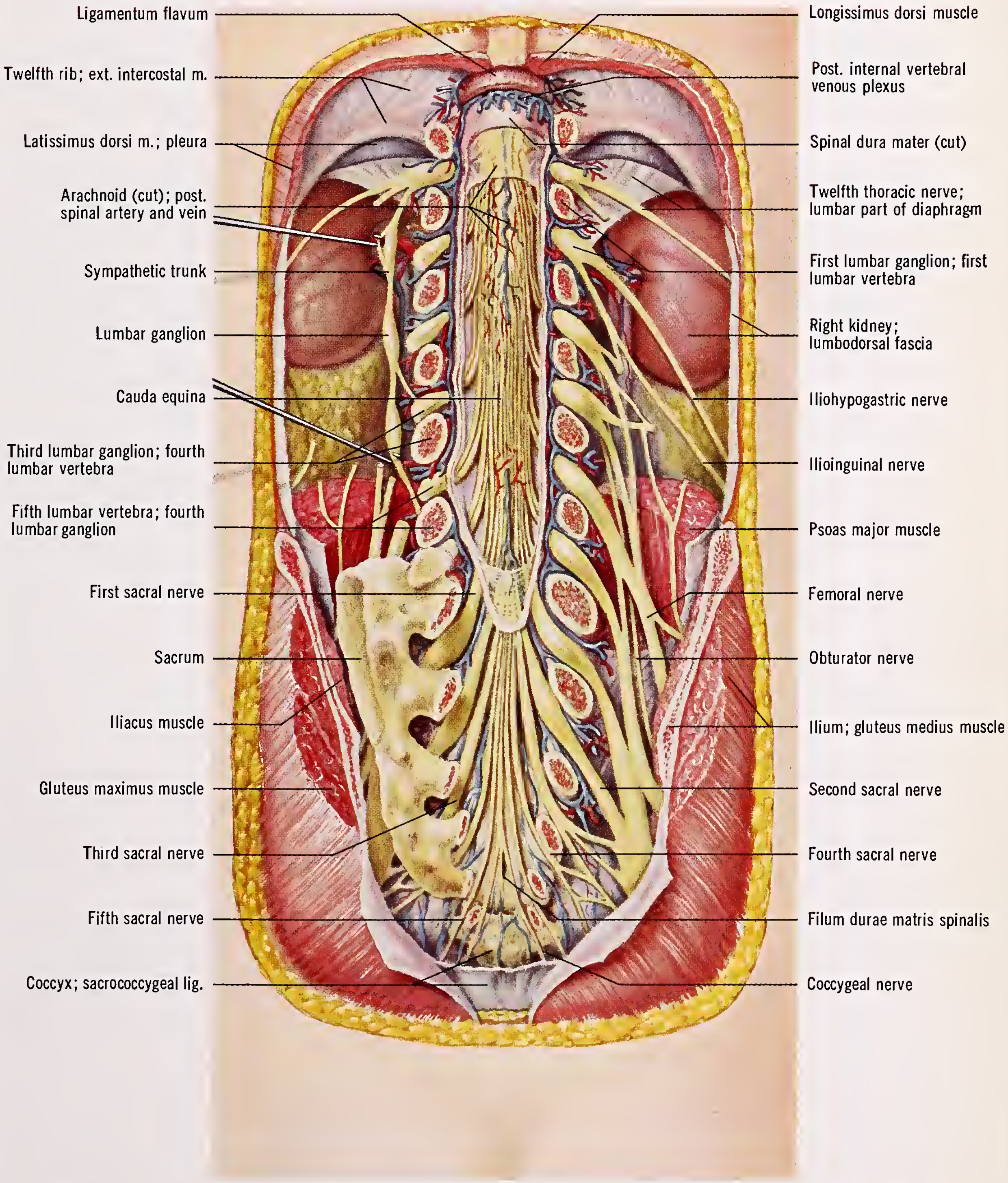
Ligamentum flavum
Twelfth rib; ext. intercostal m.
Latissimus dorsi m.; pleura
Arachnoid (cut); post. spinal artery and vein
Sympathetic trunk
Lumbar ganglion
Cauda equina
Third lumbar ganglion; fourth lumbar vertebra
Fifth lumbar vertebra; fourth lumbar ganglion
First sacral nerve
Sacrum
Iliacus muscle
Gluteus maximus muscle
Third sacral nerve
Fifth sacral nerve
Coccyx; sacrococcygeal lig.
Longissimus dorsi muscle
Post. internal vertebral venous plexus
Spinal dura mater (cut)
Twelfth thoracic nerve; lumbar part of diaphragm
First lumbar ganglion; first lumbar vertebra
Right kidney; lumbodorsal fascia
Iliohypogastric nerve
Ilioinguinal nerve
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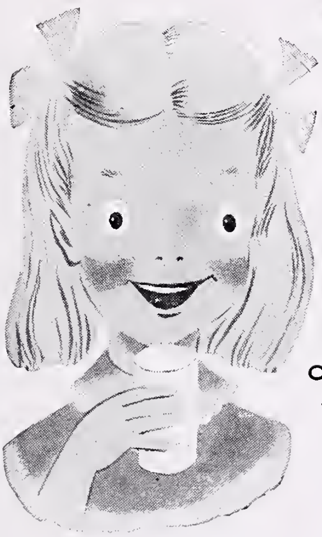

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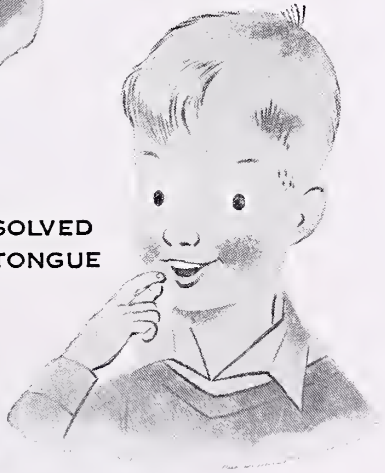

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THE PRESENT STATUS OF THE MANAGEMENT OF URINARY INFECTIONS*

Theodore R. Fetter, M. D.,**
Philadelphia, Pa.

Infection is the most common lesion of the genito-urinary tract. It ranks second in occurrence to respiratory infection. The frequency of infection of the urinary organs may indeed account for a certain lack of appreciation of its potential danger in the maintenance of renal health. It is interesting to note that infection of the urinary tract has responded to many of the recently developed antibacterial agents. Modern chemotherapy and the antibiotics have completely changed the pathologic processes in the urinary tract. It is necessary to repeat in any presentation of the management of urinary infections that definite fundamental principles must be borne in mind. Failures are the result of the indiscriminate use of the antibacterial agents. A complete lack of understanding of their effectiveness is frequently demonstrated by a total disregard of fundamental urologic practice. It is now nearly 20 years since the first clinical work on the sulfonamides was done. For more than a decade thereafter, the various sulfonamides monopolized the chemotherapeutic field. The antibiotic era was then initiated by the clinical application of penicillin by Chain and Florey following the previous laboratory discovery of its activity by Fleming. Streptomycin was then discovered by S. Waksman in 1943. There is no doubt that streptomycin has profoundly altered the course of many cases of tuberculosis. Three antibiotics—all derived from species of streptomyces—have been designated as broad spectrum antibiotics: aureomycin, chloramphenicol and terramycin. It is essential that a working knowledge of these antibacterial agents in the management of infections be developed by the physicians. Their response to various organisms, the side reactions, the problem of adequate dosage, combinations of antibiotics, drug resistant infections, all constitute a problem that must be understood by the physician. As far as urinary infections are concerned, clinical experience has sufficiently developed to point out certain advantages of the use of one drug in preference to another.

One of the greatest difficulties in the treatment of urinary infections is the lack of application of sound clinical practice. The need for a complete medical history and physical examination, including a rectal and vaginal examination, is of paramount importance. Certain laboratory data is obviously necessary. These observations should determine the presence of: (1) acute or chronic infections; (2) obstruction within the urinary tract; (3) renal function: organic renal disease; (4) urine studies: type of organism; (5) sensitivity studies of the infecting organism; (6) focus of infection outside the urinary tract.

There are many cases of infection of the urinary tract which do not manifest any symptoms except a pyuria. On the other hand, cases of acute infection reveal themselves by severe general symptoms with accompanying grades of severity of local urinary disturbances. The patients are very ill as a result of overwhelming renal toxemia. The most important single factor in the treatment is the administration of fluids, followed by the injection of penicillin since the majority of acute hematogenous infections of the kidney are coccal in type and respond to penicillin rather promptly. As treatment progresses one of the broad spectrum antibiotics should be given, preferably aureomycin. One must now be prepared to investigate further and decide whether or not obstruction within the urinary tract may be responsible for the acute infectious process.

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*Read before the Medical Society of Delaware, Rehoboth, September 9, 1952.

**Professor of Urology, Jefferson Medical College.

If the acute episode is the result of a chronic urinary infection, obstruction is probably the historical background of the infection. Relief will not be permanent until the obstruction is eradicated. Clinically we have observed cases where the obstruction was relieved and the infection persisted. Cases of this kind need special studies with particular attention to the infective organism and its sensitivity to the various antibacterial agents. These cases invariably present some degree of renal impairment of function, and consequently the effectiveness of chemotherapy is limited.

In acute hematogenous infections of the kidney the pathologic process is disseminated throughout the parenchyma of the kidney. The source of infection may be outside of the urinary tract. Skin infections or respiratory lesions are the most common sources. The organism is usually staphylococcus and less frequently streptococcus. In acute bacillary infections of the kidney the source is generally within the urinary tract—due to obstructive uropathy—or the intestinal tract. The colon group of organisms are the most common in the urinary tract and respond readily to chemotherapy if no obstruction exists. The resistant bacillary infections are due mainly to B. proteus vulgaris and Ps. aeruginosa, exclusive, of course, of tubercle bacilli.

It is evident that in order to obtain maximum results of chemotherapy and the antibiotics in the treatment of urinary infections adequate function of the kidneys is essential. The corallary of this principle is that free drainage of urine must exist. Obstruction within or without the urinary tract must be corrected. Urolithiasis and infection are difficult to manage unless the calculi are removed, although symptomatic or temporary relief may be obtained in the presence of stone. Renal drainage as a result of repeated and continued bacterial invasion leads to serious consequences. Renal azotemia is often the result of repeated episodes of pyelonephritis. Therefore an estimation of renal function must be determined either by urine study or blood retention tests. One may obtain a fairly good impression of renal capacity by carefully checking the urine output. In the home, the physician must instruct one of the attendants to keep a record of total urine output. Thus, in prescribing any antibacterial agents one may be assured of a satisfactory response of the medication in relation to renal capacity.

It is important to insist upon a properly collected specimen of urine. It is essential to have a knowledge of the bacteriologic variants and their response to selective chemotherapeutic and antibiotic agents. In the female the urine must be obtained by catheterization. The male patient can be requested to void in clean containers; if culture is desired the receptacles must be sterile. With infants and children a little patience and ingenuity will often be rewarded with a "clean" specimen of urine. The mother must frequently be instructed in the methods of urine collection. Following the collection of urine one is able to determine what type organisms are present by staining the urinary sediments either with methylene blue and/or the gram stain. The majority of infections are bacillary and usually respond promptly to sulfonamides and/or the antibiotics, but it frequently happens that many organisms develop a resistance to medication. For this reason it is well to study the infected urine from the standpoint of bacterial sensitivity to the various chemotherapeutic agents. In the long run this proves not only economical but the percentage of failures is diminished.

It is imperative that one have an idea of the causative factor of urinary infections. If complete investigation of the urinary tract reveals no obvious reason for the occurrence of infection, the influence of distant foci should not be overlooked. This is true for both acute and chronic infections. Tuberculosis must always be borne in mind. In many instances acute urinary infections will subside without any specific therapy except the usual general remedial measures such as good nursing, adequate fluid intake and proper bowel elimination. In viral infections it is not uncommon to have an acute urinary episode of sudden hematuria followed within 24 to 48 hours with pyuria and marked disturbances of urination. Organisms are not obtained in the stained urinary sediment. In these cases, cystoscopy reveals a simple hemorrhagic cystitis. The culture of the urine may or may not be positive for a streptococcus hemolyticus strain. Penicillin and/or aureomycin benefit these patients promptly and within 7 or 10 days the lesion in the bladder has disappeared.

It is the recurrent, acute infectious episode which should give rise to caution and the physician should then insist that a complete urological study be made. The common occurrence of anatomic variations of the urinary tract cannot be over-emphasized. This should be particularly noted in the management of urinary infections of infants and young children. Extravulvar and genital lesions are frequently responsible for recurrent urethritis in children. A small pin point urethral meatus if recognized and treated will lead to prompt relief of infection. The mothers of these children must be instructed to observe the rules of hygiene and cleanliness. A child may have one or more obstructive lesions in addition to any anatomic variant, so that cystoscopy is nearly always indicated if we are to make any progress in the management of urologic disease in children.

In adults the same problem presents itself but diagnostic investigation is not necessarily delayed unless the patient refuses to cooperate with his physician. In many cases the urinary infections will persist despite removal of obstructive lesions and furthermore, the usual antibacterial drugs do not seem to influence the course of the chronic infection. These cases are difficult and require every effort to remove any possible foci of infection within or without the urinary tract. Adnexal disease and urethral lesions in both male and female are very common causes of persistent chronicity of urinary infection.

In pregnancy urinary infections are not uncommon. It is important to know whether there is any precedent urologic disease. It is necessary to obtain data on renal function. The majority of infections during pregnancy respond to the broad spectrum antibiotics. If failures are evident additional data may be sought by an intravenous urogram. Cystoscopy and ureteral catheterization is generally not necessary unless the infection progresses to the point where the pregnancy is threatened by progressive renal toxemia.

The Problem of Dosage

The development of present-day chemotherapy is familiar to physicians but less so are the changes in approach to the problem of adequate dosage. It has been recognized since the sulfonamide era that large doses of the drugs were not necessary in the majority of cases of urinary infection. In acute staphylococcic and streptococcic infections of the kidney it is important to give an adequate amount of the drug to secure prompt and maximal antibacterial effect. This may be given intravenously in conjunction with fluids. The response depends entirely upon adequate renal capacity. For this reason it is better to obtain adequate fluid interchange before "loading" the kidney with high dosage of the antibacterial drug. In the sulfonamide era it was not uncommon to note crystalization of the drug and the clinical phenomenon of "lower nephron necrosis." So thoroughly was the idea of a "large or loading" initial dose inculcated into the medical mind during the era of sulfonamides that the same principles were observed with penicillin and later with aureomycin. It is a clinical fact that the majority of urinary infections will respond to the usual ordinary dosage regime. The number of complications and side effects of the sulfonamides is now recognized. The reactions following large dosages of penicillin initially are comparatively few and in certain types of cases, probably this initial loading dose serves a very beneficial safeguard. In acute suppurative infections of the kidney this is correct.

Following the introduction of the broad spectrum antibiotics (aureomycin, chloramphenicol, terramycin) it became apparent that different methods of dosage must be used. Unfortunately this has not received wide acceptance by the medical profession as a whole. They persist in prescribing an initial dose of double the ordinary dose for a period of 24 hours. Clinical and laboratory investigators have been reporting that a large single dose of the broad spectrum antibiotics is not completely absorbed when given by mouth. Considerable loss of the antibiotic occurs by fecal excretion. The incidence of side reactions is in direct proportion to the size of the dose and the amount of unabsorbed antibiotic. It is generally true that one prefers to administer enough of the antibiotic rather than less—despite the fact that a large proportion of the medication may be lost by the inability of the intestinal mucosa to absorb the antibiotic. It is a safe method to follow the normal dosage regime to insure sufficient antibacterial activity. It is well to continue the antibiotic for a short period of time after the urine becomes sterile. If results are not obtained in 7 or 10 days of continuous medication further investigation is obviously indicated.

Penicillin — Penicillin continues to be the antibiotic of choice for treatment of all gram-positive bacterial infections including staphylococci, pneumococci, hemolytic and nonhemolytic streptococci infections. In addition it is the most effective drug for the treatment of gonorrhea and syphilis. In dealing with penicillin-resistant staphylococci infections, the broad spectrum antibiotics are indicated, preferably aureomycin, which generally inhibits the organisms. There is considerable variation in resistance to the different antibiotics among various strains of staphylococci so it is necessary to test the sensitivity of those failing to respond to penicillin.

Penicillin-resistant gonococci are best treated by the broad spectrum antibiotics. Aureomycin, 250 mgs., 4 doses in 24 hours is usually sufficient. It is advisable to continue half dosage, 500 mgs. daily for 2 or 3 days. It is necessary to check the patient at weekly intervals to note any evidence of recurrence of the infection.

Streptomycin and dihydrostreptomycin. The most important fields of application for streptomycin and dihydrostreptomycin are in the treatment of tuberculosis and the gram-negative bacillary infections such as aerobacter aerogenes, escherichia coli and proteus vulgaris. When either form is used for the treatment of urogenital tuberculosis it should be combined with para-amino-salicylic acid, since this procedure increases the period during which treatment may be continued before bacterial resistance develops. One gram of dihydrostreptomycin per day by injection combined with 12 grams of para-amino-salicylic acid by mouth for one year is advised for genitourinary tuberculosis. This form of treatment is the only available method today in bilateral renal tuberculosis. In unilateral renal tuberculosis or in genital tuberculosis it is recommended that dihydrostreptomycin and para-amino-salicylic acid be prescribed for a long interval of time. In cases of involvement of the bladder where unilateral nephro-ureterectomy was done, local symptoms and the pyuria are relieved if this combination of therapy is used.

The effect of isonicotinic acid hydrazide on genito-urinary tuberculosis is not well known at the present writing. Several patients in our Clinic are now on clinical trial with this drug. I am not prepared to say that it is very helpful. In one case there was marked symptomatic improvement with a decrease of urinary frequency, a sense of well-being and a tendency to a clearer urine. The improved sense of well-being appeared in all five of our cases and was attributed to the fact that a new drug was under observation.

In mixed infections of the urinary tract penicillin and streptomycin are given in combination. Good results have been observed and it is advisable to continue this form of treatment if obstructive states and tuberculosis have been ruled out.

Colon infections of the prostate respond readily to streptomycin therapy. The combined use of penicillin and streptomycin are preferred in this type of prostatic infection. Their use in pre and postoperative treatment in prostatic operations is routine at present. Resistant strains of organisms are less likely to develop if the urine is strongly alkaline.

Aureomycin—Aureomycin has proved effective in our Clinic for infections that have developed resistance to other antibiotics. There are many who consider aureomycin the best remedy for general use in most urologic infections exclusive of gonorrhea and tuberculosis. In penicillin-resistant gonococcal infections, aureomycin is the drug of choice. Frequently a single daily dose of 500 mgs. will eradicate the gonococcus. In prostatic infections, particularly the nonspecific variety, aureomycin is preferable to any antibiotic. This is also true in nonspecific urethritis where aureomycin is very effective. A distinct advantage in the use of aureomycin is that its activity is increased in an acid medicine, rendering it more useful in the majority of these infections than streptomycin. The side reactions of aureomycin are generally of the gastro-intestinal variety and may be prevented if the drug is combined with milk. In known allergic patients, aureomycin produces side reactions early but they are comparatively mild in character and the medication can be continued unless nausea and diarrhea become progressively worse.

Aureomycin is used prophylactically by mouth to prevent urinary infection when catheterization of urethral dilatation is necessary. The incidence of reactions of chills and fever following urethral instrumentation has been remarkably reduced.

Its use following prostatic operations, particularly transurethral operative procedures has been found an invaluable aid in the postoperative management of these cases. The urine tends to clear rapidly and eventually becomes sterile. At the present time aureomycin is far superior to any of the broad spectrum antibiotics in routine urologic practice. In penicillin-streptomycin-resistant cases, aureomycin should be tried promptly.

Terramycin. Terramycin is effective against the common invading organisms in urinary infections and has as wide a range of action as other antibiotics. It is relatively untoxic except for side relations of the gastrointestinal variety. Discontinuance of the drug clears up the side reactions promptly. It is used interchangeably with aureomycin if the latter does not produce effectiveness in eradicating the urinary infection. In several instances in my practice, terramycin produced a sterile urine which proved resistant to penicillin, streptomycin, aureomycin and the sulfonamides. The behavior of drug resistant infections in very interesting. That is to say, some strains of bacteria are naturally resistant to the antibiotic; others are sensitive. From a clinical standpoint, when a new antibiotic becomes available for clinical investigation, definite differences in sensitivity among the various strains of susceptible species of bacteria are noted. Terramycin is a valuable broad spectrum antibiotic with little evidence of toxicity.

Chloramphenicol. Chloramphenicol (chloromycetin) is very effective against the gram-negative bacillary infections. It will produce a sterile urine promptly in many cases where other antibiotics have failed. The dosage regime is the same as aureomycin and terramycin. Its prolonged use must be discouraged unless adequate blood studies are made at intervals. It must be recognized that in many instances of urinary infections a gradual diminuation of red blood cells occurs; unless this is appreciated a patient may develop a marked secondary anemia which may prove disastrous. This is particularly true in chronic urinary infections and the acute hematogenous variety. It is well therefore not only to treat the urinary infections but any possible complicating factors as a result of the infection. Anemia is invariably present or follows urinary infection. Chloromycetin has produced aplastic anemia as a result of its prolonged and intermittent use. A recent ruling by the Food and Drug Administration states that the package of chloromycetin must carry warnings relative to its use and that it can be obtained only on a physician's prescription. It is obvious that all antibacterial drugs should be obtained only on a doctor's prescription. The indiscriminate use of any such drugs may well produce blood and tissue changes which are potential health hazards.

Polymyxin. Polymyxin (aerosporin sulfate) is very active against gram-negative organisms. It is produced by bacillus polymyxa. When all other agents fail, polymyxin will frequently be successful in eradicating the pseudomonas and the coli-aerogenes groups of organisms. Its importance lies in the fact that contrary to aureomycin, chloromycetin and terramycin it is effective in pseudomonas infections. Pulaski J. Urol 62:564 Oct. 1949 states that drug-fast bacteria were not produced by treatment with polymyxin. Nephrotoxicity and neurotoxicity are likely to be produced by polymyxin, according to some clinical reports. Jawetz (Arch. Int. Med. 89:90 (Jan.) 1952) states that his studies with polymyxin-B indicated no serious nephrotoxicity and all neurotoxic symptoms disappeared within 24 to 48 hours after discontinuance of polymyxin-B injections.

Our experience with polymyxin lies in the field of its local application in combination with bacitricin (aerosporin-B) to infected incisions, and sinus tracts; also in plastic procedures on the penis as a prophylactic agent. It has proved highly beneficial and healing is undoubtedly facilitated.

Sulfonamides. The sulfonamides remain valuable urinary antiseptics. The newer drugs on the market represent relatively low toxicity. Sulfisoxazole (gantrisin) is one of the sulfonamides which is used continuously in our Clinic. It is relatively cheap and in many cases sufficient to obtain satisfactory clinical results. It is effective in the treatment of escherichia coli infections. It may be given in combination with penicillin. The average dosage pattern is 0.5 gm. every 4 or 6 hours for a period of 10-14 days. It has a wide antibacterial spectrum and its toxicity is not necessarily a problem in routine office practice. No sulfonamide should be given over a prolonged period unless the patient is followed routinely and frequent blood counts made.

Methenamine Methenamine (urotropin) continues to be a very useful drug, particularly in the treatment of gram-negative bacillary infections. In routine office practice I use mandelamine (mandelic acid and methenamine). This drug is very effective in postoperative management of transurethral prostatectomy. The dosage of 1 gm. of mandelamine 3 or 4 times daily for 10 to 14 days is adequate and the results are very satisfying. It is not as expensive as the antibiotics and may be given over a long period of time without deleterious effects. It is also very effective in recurrent low grade infections of the bladder in women.

Pyridium. Pyridium must be included in a discussion of urinary antiseptics. It enjoys a wide popularity. It is probably the most common urinary antiseptic because it is relatively nontoxic and the physician does not need to be concerned with the side effects of the sulfonamides, or the relative sensitivity of the antibiotics. Pyridium has a soothing effect on the mucosa of the urinary tract and the acute symptoms of burning on urination, frequency of urination, and dysuria are diminished. Psychologically the patients possibly derive some benefit from its use because of the beautifully tinted orange color of the urine. Two or three tablets of pyridium three times a day usually are suffiicient to produce a therapeutic effect. It apparently is common procedure, in office practice, to give a single injection of penicillin of 300,000 units and maintain oral medication with pyridium until the next visit of the patient. This may be good therapeusis if the infection of the urine is chiefly due to a coccus; otherwise the penicillin is wasted. The rapidity of therapeutic response in any urinary infection depends upon a proper urine study.

Arsenicals. The value of arseno therapy in the treatment of a bacterial pyuria or "sterile pyuria" is well recognized. Oxophenarsine (mapharsin) in increasing dosage every four days for a total of 6 or 7 injections (0.3 gm. - 45 gm. - 0.6 gm.) 2 injections each, is given. The results are dramatic. The sulfonamides and the antibiotics seem to have no effect on the urine. The relationship of abacterial pyuria to Reiters syndrome—a nonspecific urethritis conjunctivitis and arthritis—remains unsettled. The smears and cultures of the urine fail to reveal any organisms. The response to arseno therapy is considered specific only when all other treatment has failed, when arsenicals produce an immediate effect and when complete eradication of all signs and symptoms is the end result.

In resistant staphylococcic pyurias to antibiotics, arseno therapy is frequently employed. Mapharsen in dosage of .45 gm. to 0.6 gm. is given at intervals of 4 days for 5 to 7 injections.

SUMMARY

The fundamental principle of urologic practice is that an adequate and free urinary passageway must be obtained before optimum results may be expected from chemotherapy and antibiotics in the treatment of urinary tract infections.

Renal function must be adequate in order that a sufficient amount or concentration of the antibacterial agent may be delivered to the site of the infection.

The study of the urine must be such that the infective organism is known and on the basis of sensitivity and susceptibility of the bacterial species the proper antibacterial agent is selected. The problem of dosage of any of the agents must be familiar to the physician for effectiveness.

The success or failure in the treatment of urinary tract infections depends upon the application of sound clinical practice in each case.

255 S. 17th Street

DISCUSSION

DR. N. L. CANNON (Wilmington): In addition to the enjoyment we have shared listening to Dr. Fetter's splendid presentation I have had the increased benefit of leisurely reading his paper in its entirety.

I cannot recall having read a better, more concise yet comprehensive analysis of the modern aspects of the treatment of urinary tract infections.

I should like briefly to reiterate and reemphasize three salient points. In the first place any patient with a urinary infection deserves the most exacting, detailed and scrupulous study from a general medical point of view.

For not only are many urinary infections secondary to extra urinary foci but in primary infections due to some obstructive lesion there are also clues to the diagnosis which can be found in a careful clinical examination.

Secondly; a careful urologic study should include a search for obstructive lesions—none are too minor to be casually dismissed, a complete renal function study as well as urine cultures with sensitivity determinations to serve as a basis for specific antibacterial therapy. And thirdly, the urologist can best cooperate with the general practitioner in the management of these infections by knowing the scope of this growing therapeutic armementarium so that he can utilize the available drugs properly, fully, and effectively. By so doing we can minimize the seriousness and potential progressive damage which chronic, recurrent urinary infections can have upon the kidneys, the bladder and upon the patient's health as a whole.

And when the organism proves resistant to all the available antibiotics in vitro we have to remember basic principles of promoting free urinary drainage, surgical principles, and general medical supportive measures as well as continuous and patient checking of all possible reasons for an apparent failure. The number of patients who are not cured is growing steadily fewer, thanks to the combined strength of our therapeutic and diagnostic facilities.

If the past twenty years is any indication of change, I can't help feeling that the next twenty will carry us again as far along in the triumph over our bacterial enemies in the urinary tract.

I was interested about the fellow assigned to the pediatric wards of the hospital looking mainly for urinary infection in children. I have seen two children where the urinary tract was not thought of, and both the children, under two years of age, were allowed to progress to a point where bilateral nephrostomies had to be done. There was bladder obstruction in both cases and if recognized early enough could have been treated for what they were without progressive damage to bladder, uterus and kidneys, and it is questionable whether the results from the surgery that was done will at any time allow of any appreciable recovery of the urinary tract to permit the children to grow up to a healthy adulthood. So I think increased suspicion should be pointed to anomalies, or unexplained recurrent infections, and children should be checked cystoscopically, no matter how young they may be. We have small cystoscopes.

Since I have been in the profession I still carry on ald axiom. I am not going to discuss his paper, because it is too well-prepared. I am only here to emphasize a few points that he has already made.

A perfectly adequate history plays a very important part in our diagnosis of any malady, as the old axiom still stands good—Find the cause, remove it, and you have a cure. So it holds, today.

I am very glad he went as far back as the sulfa drugs. I remember the drug when it first came out—particularly sulfonamid. We thought we had a cure for a lot of things that we didn't have a cure for before. But the continued use of it sometimes brought bad results, such as skin irritations, etc., and in spite of the fact we got dramatic results from the use of the drugs, we still had things to contend with. I remember the first time I used it in the case of scarlet fever. In less than 24 hours the lesions were entirely gone, which, naturally, with the history and background of the drug made me think the disease was cured. I stopped it, only to have the disease appear again within 24 hours. That led me to believe that was not the whole answer.

Consequently, I am going to emphasize here the maintenance of the use of a drug until such time that you think that the disease is done away with. The same history presented itself when we first had penicillin. I remember the time when penicillin had advanced greatly among the antibiotic drugs when the drug only lasted two hours and fifty-eight minutes in the body. It was promptly eliminated through the bowels or kidneys, but penicillin has developed to such an extent that today the manufacturers and research workers have advanced the physiological action of penicillin from two hours and fifty-eight minutes to almost two weeks.

The bacteriological studies of these things are very important. I am only emphasizing them. Dr. Fetter made these things look so easy that they seemed almost elementary. They are not elementary, of course; they are very important from every phase, from the attic to the cellar.

Why is it that sometimes the bacteria concerned develop a certain protective power against a drug that we may use? He put that in a different fashion. That is one of the things that even today in the case of penicillin is true. When penicillin started to be used for lenitic conditions, all the best authorities claimed that 600,000 units of penicillin was adequate to cure any such condition in ten injections. Today we find out that it is not adequate. We have to go further than that. Fifteen or twenty almost give us the answer.

And one more question. Why is it the bacteria do develop a certain defensive mechanism under the antibiotics today as much as they had at first? Or with the antibiotics we have today as much as the ones we had at first?

Dr. Fetter: I appreciate your discussion of this subject. I have very little to add to what was stated, more or less along general lines, in my remarks. However, it is well to remember that some of the older urinary antiseptics are still worthwhile in certain types of infections. As time has gone on the toxic effects of the sulfonamides have gradually diminished. They are extremely popular today because of economy. In regard to the management of gonorrheal infections, penicillin is the drug of choice. In chronic urethral discharge which reveals gram-negative intracellular diplococci, aureomycin has been reported to be of tremendous value.

SCROTAL DIVERTICULUM OF THE URINARY BLADDER

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Scardino and Upson, state that "the urinary bladder is not infrequently encountered in herniotomy" (1-3% of all inguinal hernias); and that "the occurrence of a bladder diverticulum in association with an inguinal hernia is an uncommon surgical experience and one which requires the combined efforts of the general surgeon and urologist." There are three types of scrotal bladder hernias: (1.) intraperitoneal; (2.) extra-peritoneal; (3.) paraperitoneal.

In reviewing the literature, they found a single recent American report of scrotal cystocele where the author[2] reported two personal cases and found 30 others (scrotal bladder hernia) in the foreign literature, some of which were thought to be diverticula.

In talking with local surgeons, I find that most of them have encountered a structure during inguinal herniorrhaphy which has been found to be urinary bladder, the finding usually coming as a surprise, the diagnosis not having been made preoperatively.

Diagnosis: An exact diagnosis can be made by cystogram. A careful urinary history may give a lead; however, some cases do not complain of urinary symptoms. Again, some cases develop acute urinary retention. Intermittency is a valuable sign when elicited. Some patients will void that urine in the abdominal portion of the bladder, and then by applying pressure over the scrotal mass, will again void an appreciable amount. This is also spoken of as two-stage urination.

Cystoscopy may be helpful. However, if there is a much enlarged prostate, as in the case herein reported, it may be impossible to see the bladder or diverticular opening leading to the scrotum. Pressure on the scrotal mass often induces the desire to urinate. Residual urine is present in most cases. Hydronephrosis and hydroureter may develop in some due to traction or angulation of the lower ureters.

When an accurate diagnosis has been made, the combined surgical-urological team can plan a surgical approach suitable for both hernial repair and resection of the diverticulum. In case of true bladder herniation, replacement of the bladder is ideal, if feasible. One can get into surgical difficulties unless a diagnosis has been made preoperatively. The following case report illustrates this.

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Case Report

N. B., white male, age 68, was admitted to the St. Francis Hospital with the chief complaint of not being able to void. He had had difficulty in passing urine for ten years. Lately he had been using combined abdominal and scrotal pressure as an aid in voiding. The significance of this was overlooked in making a final diagnosis. There was burning and dribbling on urination. Anorexia and constipation had been present for the week before admission to the hospital.

Past history and family history were irrelevant. On general physical examination the head and neck were normal, as were eyes, ears, nose and throat. There were a few moist, crepitant rales at the lung bases. The heart revealed a blowing systolic murmur at the base and apex, but was not enlarged. The abdomen was pendulous and there was dullness to percussion to the right of the umbilicus which was felt to be liver.

On examination of the external genitalia there was a doughy mass in the right scrotal sac which did not give an impulse on coughing and was thought to be a small hydrocele. Rectal examination revealed a Grade III benign overgrowth of the prostate. Extremities were normal; neurological findings were normal.

Laboratory Findings. Blood count and blood urea within normal limits. Urinalysis—no sugar, no albumin, many WBC.

Intern's Impression: 1. Benign overgrowth of prostate. 2. Oliguria, with impending congestive failure.

Chest X-Ray: Heart and lungs within normal limits.

Excretory Urogram showed prompt appearance of the dye in both kidneys in five minutes. There was slight bilateral hydroureter. A 60 minute film showed the bladder incompletely filled and irregular in outline on its right lateral aspect. (This suggested some intrinsic or extrinsic factor responsible for drawing the bladder to the right. Tumor was thought of, but in a lesion of this extent there would have been a history of hematuria.) Both ureters in their lower one-third were displaced to the right.

Cystoscopy revealed a normal bladder mucosa, but due to the prostatic enlargement the ureteral orifices were not visualized, nor was the mucosal surface of that part of the bladder wall seen that appeared displaced to the right in the excretory films. It was assumed that this was a local sacculated area consequent to bladder neck obstruction.

A final diagnosis of benign overgrowth of prostate and right hydrocele was made, and operation planned to resect the hydrocele to be followed by electric endoscopic vesical neck resection. After a short period of permanent catheter drainage and urinary tract disinfection, operation was finally carried out.

Operation: The right scrotal sac was opened, and it became immediately apparent that we were not dealing with a hydrocele. A mass presented which was doughy in consistency and easily compressible. The spermatic cord was greatly elongated and the testis appeared small and trophic. A small hernial sac presented contiguous to the cord. Cord and testis were removed while the small hernial sac was resected, and its neck carried upward through the external inguinal ring and sutured under muscle and fascia.

Attention was now directed to the doughy herniation which preoperatively was presumed to be a small hydrocele. As there had been no impulse transmitted to the scrotal mass preoperatively, it was felt that there was no gut present. Careful dissection of the mass revealed bladder muscle. An incision was carried down through the muscle layer, the mucous surface, and through this layer into the lumen of what now appeared to be a bladder diverticulum. There was no urine in the diverticulum. A finger could now be passed through the neck of this structure into the bladder proper until the enlarged prostate could be palpated from its bladder aspect.

As we were not certain that we might be dealing with hernia of the urinary bladder, a transverse suprapubic incision was made, and the bladder opened. It was now possible to invert the diverticulum and push it up through the external ring on into the bladder proper. However, it was apparent that diverticulectomy could be carried out more easily working in the scrotal area. Consequently, the diverticulum was returned to this area and resected, pursestringing its neck, which in turn was pulled up through the external inguinal ring, inverted, and tied from within the bladder. A large suprapubic tube was inserted and bladder and suprapubic incision closed, followed by repair of the large external ring and final closure of the scrotal incision around a Penrose drain. The prostate was left for subsequent endoscopic vesical neck resection which was carried out uneventfully 18 days later, the patient being discharged from the hospital four days following electric resection of the prostate.

Comment

A plea is made for the routine employment of the cystogram in urological diagnosis. The technique is simple, and the information gained is often greater than that derived from cystoscopy. It is the only accurate method of demonstrating scrotal cystocele.

Summary

1. Attention is called to the rarity of diverticulum of the bladder occurring in the scrotum.
2. A personal case report is presented with references to the literature.
3. A plea is made for routine use of the cystogram in urological diagnosis.

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INTESTINAL OBSTRUCTION

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Our Chairman suggested I discuss the problem of intestinal obstruction this evening. This is a large order for the time allotted. Of necessity, this paper shall, therefore, be limited.

The causative factors in obstruction of the bowel may be classified as: (1) mechanical; (2) nervous, (3) vascular.

The most frequently observed causes of intestinal obstruction are due to mechanical agents such as: (1) adhesions; (2) herniae; (3) narrowing of the lumen due to strictures of the intestinal wall either acquired or congenital or obturation of its lumen by a foreign body or compression of the lumen from without; (4) volvulus, (5) intussusception; (6) embryologic defects.

Disturbances of the nervous mechanism may interfere with intestinal motility; these may be paralytic or spastic in nature.

Interruption of the normal blood flow to or from the intestinal tract, such as embolism or thrombosis of the mesenteric vessels will cause intestinal obstruction.

From a pathologic viewpoint there are but two types of obstruction: (1) simple obstruction, presenting interference with the continuity of the bowel only, (2) strangulating obstruction, in which there is evidence of compromise of the blood supply.

The chief complaints of patients with intestinal obstruction are of pain and vomiting, and later of distention. The pain is crampy and intermittent and is described as a "gas pain." The colicky distress may recur frequently or at long intervals, depending on the nature of the obstruction. The vomiting is frequent and copious in small bowel obstruction. Great distention of the abdomen with little or no vomiting usually means that the obstruction is in the colon.

The appearance of the patient early in the course of obstruction often affords no evidence that he is suffering from a serious ailment. The pulse rate, respirations, temperature, and blood pressure are usually normal. Apart from the pain, the vomiting, and the distention, the patient may not appear to be particularly ill. In strangulating obstructions, the pulse may be rapid, shock may be present if the blood loss is great. Irritation of the peritoneum by escaping sanguineous fluid causes the patient to suffer more distress than the patient with simple obstruction.

The most significant physical findings are obtained on auscultation. The first step, therefore, in determining the presence or absence of bowel obstruction is to decide whether intestinal colic is present. The synchronous concurrence of pain and noise (borborygmus) establishes the painful contractions as intestinal colic. Intestinal obstruction of mechanical origin without intestinal colic does not exist. It now only remains to be determined whether the intestinal colic is that of bowel obstruction, enterocolotis, food allergy, or indiscretion. On the basis of such general symptoms as vomiting, distention, fever, diarrhea, and the nature of the constitutional symptoms, the differential diagnosis is usually made.

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In strangulating obstructions a great number of conditions must be thought of in the differential diagnosis. These conditions include all of the abdominal colics, such as renal and biliary, and the inflammatory diseases such as appendicitis, salpingitis, peritonitis, pancreatic necrosis, or the hemorrhagic lesions such as purpura and hemophilia. Torsion of the various organs, especially ovarian cysts and the testes, must be considered in a differential diagnosis. Typical cases of biliary or renal colic, appendicitis, salpingitis, and ectopic pregnancy, are usually easily identified. Intestinal colic is absent in all of them. In any typical condition, the history, roentgen films, and the general laboratory work will aid materially in arriving at a probable diagnosis.

Delay in diagnosis of obstruction is usually due to lack of appreciation of the fact that simple obstruction of the bowel does not give rise to local physical findings such as tenderness and rigidity. This often leads one to believe that only a trivial condition is present. When it is remembered, however, that simple obstruction of the bowel is the only serious acute lesion which does not give rise to abdominal tenderness, a lack of local physical findings in a patient with abdominal pain, nausea, and vomiting, should make one suspicious of the presence of intestinal obstruction.

It is frequently said that obstipation characterizes intestinal obstruction. The bowel distal to the point of obstruction is, anatomically as well as physiologically, normal. In incomplete obstructions, therefore, gas may continue to be evacuated as long as enemas are given. The expulsion of gas and feces following an enema does not rule out intestinal obstruction Only in complete low obstruction is obstipation present. The employment of cathartics in mechanical obstruction is not recommended. Morphine administered prior to the making of a diagnosis is also not recommended.

Once the diagnosis of obstruction is clarified, an attempt should be made to determine whether the obstruction is in the small or large bowel. The next step should ascertain whether the obstruction is complete or incomplete. Finally, an attempt should be made to identify the exact nature of the obstructing agent.

MORTALITY RATES

Scudder[1], in 1907, reported a mortality rate of 60% in all cases of intestinal obstruction. In 1933, Wangensteen[2] reported a mortality rate of 17%. Nemir[3] reports a mortality rate of 10% for the period 1940-1950. However, the mortality in cases where gangrenous bowel was found at operation was 31%. It is, therefore, evident that early diagnosis and treatment are essential factors in lowering this high mortality rate.

The following case reports may clarify some of the obstacles encountered in diagnosis and treatment.

CASE REPORTS

Case 1. White female, age 28, was admitted to St. Francis Hospital on November 25, 1950, with chief complaint of abdominal pain for two days prior to admission. The pain was colicky at first, but became constant for the twelve hours immediately before admission. Vomiting, increasing in severity, was present for two days. The past history and family history were not significant.

Examination releaved a well nourished white female, acutely ill. The temperature was 100°, pulse 96, and respirations 28. Blood pressure was 118/70. Head, neck, and chest were normal. The abdomen was considerably distended. There was marked tenderness in the right lower abdomen. Peristaltic sounds were markedly diminished. Laboratory studies showed a leukocytosis; all other studies were normal. Diagnosis was made of "acute abdomen," possibly intestinal obstruction.

Laparotomy was performed several hours after admission. Serosanguineous fluid was present in the abdominal cavity. The upper small bowel was distended and edematous. A volvulus was recognized; the involved bowel was gangrenous for a distance of about nine feet. Gangrenous bowel was excised, and end-to-end anastomosis performed. Convalescence was uneventful.

Case 2. White male, age 35, was admitted to St. Francis Hospital on September 26, 1952, with chief complaints of vomiting, abdominal pain, and abdominal distention of three days duration.

Examination revealed a fairly well nourished white male, acutely ill. The temperature was 99°, the pulse, 100, and respirations 22. Blood preessure was 106/78, diastolic. The chest was clear, heart normal. Abdomen was quite distended. There was some tenderness in the lower mid-abdomen. Peristaltic sounds were diminished. Laboratory studies were normal.

X-ray of the chest showed normal appearing heart and lungs. Flat plate of the abdomen showed evidence of a localized distention by gas of the upper small intestinal loops, suggestive of a high level intestinal obstruction.

A laparotomy was performed. Upon opening the abdomen a large quantity of sanguineous fluid was found. About 150 cm. of the lower ileum was gangrenous, and this was excised. Normal small bowel was sutured to cecum. Cultures were positive for B. coli, were chloromycetin sensitive, and also slightly sensitive to aureomycin and terramycin.

Pathologic examination: "Piece of small intestine measuring 144 cm. long. A large portion of the mesentery is attached. The intestine is dark red and obviously in a stage of early gangrene, except at the extremities. Examination of the blood vessels in the mesentery shows them filled with blood, but no obvious thrombosis is encountered. Diagnosis: Gangrene of small intestine due to circulatory disturbance."

Convalescence proceeded uneventfully. This is an example of intestinal infarction without bascular obstruction. Experience has shown that besides real intestinal infarction due to thrombosis or embolism, another type of so-called intestinal infarction occurs in which no vascular obstruction is present. According to Thorek[4] this class of cases often is perplexing, taxing the surgeon's diagnostic and therapeutic ability to the utmost.

Case 3. Colored male child, age 2, was admitted to St. Francis Hospital on January 13, 1950, with chief complaints of vomiting, and a colicky abdominal pain, of three days duration.

The positive physical signs were limited to the abdomen. A generalized abdominal distention was present. Peristaltic sounds were hyperactive. Dehydration was evident. Temperature was 99.6°, pulse 110, and respirations, 28.

Laboratory studies revealed a WBC of 9,800, with 54% neutrophiles, 44% lymphocytes, and 2% monocytes. RBC was 3,200,000; hemoglobin 7.5 grams. No sickle cells were found. Serum protein was 5.8 gms. Urine analysis showed a trace of albumin. Stool cultures were negative for typhoid-dysentery group of bacteria. Stools were also negative for occult blood.

Roentgen-ray examination of the chest was within normal limits. Flat plate of the abdomen showed marked distention of the loops of both small and large bowels.

On January 17, 1950, a laparotomy was performed. A congenital stenosis of the terminal ileum was found. A short circuiting anastomosis was performed. The abdomen was entirely normal five days following surgery.

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RATIONAL USE OF HORMONES IN PREGNANCY

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Before a physician administers hormones to a patient, whether pregnant or not, he should know the action and end-result produced by the hormone involved. This statement cannot be over-emphasized because many doctors prescribe hormones indiscriminately without understanding the reason behind their use.

It should be remembered that no new hormones are produced in pregnancy, with the possible exception of chorionic gonadotrophin. There is, however, an increase in the amount of the pre-existing ones present in the body.

The steroid or sex hormones are of more importance at present in pregnancy than any others, so most of this discussion will be limited to their action.

Space does not permit us to cover the entire use of the endocrines in pregnancy, but it will suffice to say where endocrine disorders complicate pregnancy the necessary hormones are administered. We shall briefly touch some of the latest treatment in ductless gland therapy.

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To understand the action of hormones in pregnancy it would be wise to review the products necessary for conception to occur. The pituitary gland secretes the follicular stimulating hormone, which in turn stimulates estrogen production by the ovary. The estrogen acts on the uterus by causing hypertrophy and endometrial proliferation. The pituitary gland then secretes its second hormone, lutenizing hormone, which in turn causes ovulation and the production of progesterone by the corpus luteum. Progesterone acts on the endometrium to make it secretory in type, extremely vascular, and ready for implantation of the fertilized ovum. Thus, these four basic hormones are necessary for the pregnancy to commence, and they have definite uses in pregnancy, as we shall see later.

Once pregnancy has occurred there is a definite increase in estrogen and progesterone, which is produced by the ovary initially. At approximately three months gestation the function of estrogen and progesterone formation is assumed by the placenta. It is at this critical point where the ovary ceases to produce the hormones and the placenta has not yet taken on this function that most spontaneous abortions occur.

For this reason the administration of estrogen and progesterone has been advocated in threatened and habitual abortions. Progesterone was the first to be used in the treatment of abortions, but unless given in relatively large doses it proved to be ineffective. Economically, large doses made it impossible for many patients to receive this hormone, so that its value is limited.

A search was then instituted for a cheaper and as effective hormone to prevent abortion, and stilbesterol was thought to meet these criteria. This conclusion was based on the fact that there was a continuing rise in estrogen during pregnancy, along with progesterone, and a fall before abortions occurred. The theory was then postulated that estrogen was necessary for progesterone formation by the placenta. Diethylstilbesterol was cheap and easy to administer, so was proposed as the estrogen of choice to give in preventing abortions. An increased weekly dosage schedule was worked out which would theoretically prevent abortions based on a progesterone deficiency.

The results of this form of treatment are paradoxical, but on the whole it may be said from all investigative work that these hormones offer very little in foetal salvage. Overenthusiasm by certain researchers have caused these hormones to be widely used, but if we look back on the cases involved I am sure very few have been aided by this form of therapy.

Chorionic gonadotrophin is another hormone produced by the placenta and may be the one new hormone produced in pregnancy. This hormone gives the positive biological tests for pregnancy, and is usually in high enough concentration to give a positive reaction two weeks after the last menstrual period. The hormone reaches its greatest concentration about the sixtieth day and then subsides rapidly in a normal pregnancy. Occasionally it is so low that a negative A-Z test would be produced within the last week of a normal pregnancy.

The induction of labor is another use of hormone therapy in pregnancy. Formerly, pituitrin, the oxytoxic derivation of the posterior portion of the pituitary gland, was used. This hormone, however, produced some serious side reactions, so that it was used sparingly. Then an oxytoxic principle was produced which had very slight reactions: this was pitocin. This hormone caused no abnormal rise in blood pressure and its action was well regulated in therapeutic doses. In the past few years, this drug has been administered intravenously by drip method in dextrose solution to induce labor. Its action is quicker, better maintained, and more easily controlled. Pitocin may be given to induce labor when the necessary criteria are present or in primary uterine inertia to stimulate labor.

In preventing lactation in mothers who do not nurse, the sex hormones may have been used rather frequently. Estrogen, more commonly in form of diethylstilbesterol, and androgen may be given for suppression of lactation. Both hormones are supposed to inhibit the production of the lactation hormone, prolactin, and thus prevent milk formation. The danger in administering estrogens is that engorgement may occur after therapy has been discontinued and occasionally profuse bleeding may occur four to six weeks later. Androgen therapy is more rational, but usually must be given for several days to be effective.

Whether hormones aid materially in preventing lactation and breast engorgement is still a debatable question. Many clinicians feel that satisfactory control may be had without the use of hormones.

Lately the use of hormones in treating eclampsia has been advocated on the basis that there is a dimunition of estrogen and progesterone with a corresponding increase in chorionic gonadotrophin. Other studies have not verified this condition, so the question of the value of hormones in the treatment of eclampsia is still unsolved.

Diabetes is another condition which has shown a deficiency of both estrogen and progesterone so that these hormones have been prescribed in this disease. Other investigators have achieved as good or better results without using hormones, so again, there is a controversy concerning hormone therapy in diabetes. Probably excellent results can be obtained with good medical management without resorting to hormones except, of course, insulin.

The thyroid hormone has always been used in the treatment of habitual abortion but its exact mechanism is not yet understood. Certainly, patients with a subnormal or low normal basal metabolism rate should be placed on thyroid therapy during pregnancy. Many physicians give it routinely in their prenatal care, but it must be remembered that the thyroid gland hypertrophies and the basal metabolism rate is raised 25-30% during pregnancy. Low dosage is the rule for thyroid during pregnancy; between one half to two grains per day being sufficient.

Hyperthyroidism may be treated by propylthiouracil or radioactive iodine up to the second month of pregnancy. After this time thyroidectomy is preferable, and should be performed before the sixth month.

The use of ACTH or cortisone in pregnancy has no place at the present time. It has been used experimentally in the treatment of eclampsia, which seems paradoxical, but the results have been unsatisfactory.

On the whole, there is very little use for hormone therapy in pregnancy that has absolute value. However, with the continued improvement and knowledge in endocrinology more rational hormone therapy will be recognized and prescribed. I would like to quote one of the outstanding obstetricians in the country on the use of hormones in pregnancy (Waters): "The status of endocrine therapy in obstetrics is highly controversial, with the greatest confusion at the highest levels."

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ALCOHOLISM AND THE GENERAL PRACTITIONER*

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Alcoholism presents a serious challenge to the medical profession. People who are ill and troubled are going to try to get well even if they have to create their own resources and devices to do so. Nowhere is this more apparent than in the treatment of alcoholism. Although this is essentially a medical problem, progress in treatment has developed largely from non-medical people.

Unfortunately, it has been assumed that there are only two kinds of alcoholics. There is the group found in every community—the so-called "skid-row drunk." At the other end of the spectrum is the psychotic drunk who is so greatly in need of protective custodial care. Quite forgotten are the large number in between who are capable of rehabilitation to their proper places in society, in their occupations, and in their community. Those are the people who are most responsive to therapy and most likely to inactivate their alcoholism if medical and other approaches are properly coordinated.

I practice in a town of six thousand and the ratio of alcoholics is as high there as in the big cities. There are farmer alcoholics, doctor alcoholics, engineer alcoholics, lawyer alcoholics, clerical alcoholics—whether they be Protestant, Catholic, or Jew. There are alcoholics everywhere, of all races, creeds, colors, and ethnic origins.

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*Abstract of a talk given at a Symposium on Alcoholism before the Essex County Medical Society, Newark, New Jersey, March 12, 1953.

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There is no geographical or cultural immunity. I heard one of the group talking at dinner before this meeting about seeing alcoholics in India. I've seen them on small islands, where the ingenuity required for the production of alcohol would challenge Einstein, but they made alcohol. This is not a cultural problem; it is not an intellectual problem; it is not a moral problem, per se; it is not a physical problem; it is not an allergic problem; it is not a chemical problem. It is the problem of the total man, in the full meaning of this expression.

Physicians recognize that the acute alcoholic is physiologically sick and that the disordered functions must be treated the same as any other poisoning. However, one must avoid the creation of new problems. I speak of the ill-advised use of barbiturates, narcotics, and other drugs which may begin a new chain of events to plague an already discomfited individual.

Medical authority carries with it a great deal of weight and even our words are extremely important. I saw a man who had been cared for by an excellent psychiatrist and who had abstained for a year and a half. The psychiatrist said: "You're rid of your neurotic problems. I think it would be all right for you to take a short snort before dinner." So, of course, the fellow did. After all, he wanted to, and now that he had the authority, why shouldn't he? So, in three weeks, he lost one job, one wife, and three sons.

I would like to warn about using the word "cure" in this disease. Cure is a desirable objective, but I do not think we are anywhere near where we can speak of "curing" alcoholism. Rather should we talk of inactivation, for irrespective of the time away from alcohol, no matter how nicely people get reintegrated maritally, domestically, economically, socially, and spiritually, they still can not take a single drink of liquor if they are alcoholics.

Meetings of medical groups such as this, are the places to discuss alcoholism. The people who need education are not the judges, they are not the social workers, not the fellows in legislature who write the tax laws and find out the amount of money that has to be appropriated, not the bartenders, nor the motor vehicle commissioners. They are all aware of the problem. They see it; they live with it. So they come to us, who are supposed to lead in helping the sick and the wounded. They come to us to remind us of our responsibility. Now, is it not paradoxical that such a thing should happen? I think the people who need education are the practicing physicians and the educators in the medical schools.

In talking to a group of resident physicians not long ago I said to them: "What are they teaching you about alcoholism now?" "Well," they said, "paraldehyde is all right, and antabuse is pretty good." And this is 1953!

One cannot intelligently discuss the problem drinker without mentioning the effect that Alcoholics Anonymous has had on our thinking and attitude in this disease. A. A. has given vitality and sustenance to a heretofore depraved attitude toward the alcoholic. This fellowship has made a singular contribution in our medical, social, religious and philosophical attitude in the handling and treatment of this illness. It is impossible to estimate in numbers the patients who have found recovery in the fellowship of A. A. Moreover, the effect of A. A. philosophy in thinking has gone far beyond the realm of the immediate patient. It has influenced thinking in a community, the employer, the psychiatrist, the institutional head, the police, and agencies of government. There is no force nor element of therapy existing today that has not been implemented by the philosophy of A. A. in the management of the problem drinker.

I want to close by asking you to please give this very important group of your patients some thought. You'll find it rewarding in winning their respect and confidence. Economically, you'll find it rewarding, but you'll also find that you're fulfilling the major objective to which you dedicated yourself when you chose a career in medicine.

Many cases of pulmonary tuberculosis are either disregarded by the patient or are symptomatically latent, and even after pathological examination it is not always possible to say whether we are dealing with reinfection or reactivation. George Blumer, M.D., Conn. State Med. J., May, 1952.

NEW PSYCHIATRIC DIAGNOSTIC NOMENCLATURE*

Paul J. Poinsard, M. D.,**
Philadelphia, Pa.

Because of the polyglot of diagnostic labels and systems effectively blocking communication anad collection of medical statistics, the psychiatric nomenclature has been recently revised. In 1948 at least three nomenclatures (Standard, Armed Forces, and Veterans Administration) were in use, and none of them fell accurately into line with the International Statistical Classification. Many teaching centers, clinics and hospitals had modified one or all of the above to suit its own purposes.

This revision of psychiatric nomenclature provides a classification system consistent with the concepts of modern psychiatry and neurology. It is primarily descriptive in nature and provides for inclusion of new ideas without radical revision of the system of diagnosis. It limits itself to the classification of the disturbances of mental functioning and does not include primary neurological diagnoses. These conditions are diagnosed separately, whether or not a mental disturbance is associated with them.

The following is an outline form of the revised diagnostic system.

I. Disorders Caused by or Associated with Impairment of Brain Tissue Function

This snydrome of organic brain disorder is due to impairment of brain tissue function from any cause. These disorders are separated into acute and chronic depending upon the nature of the pathological condition in the brain. In acute disorders the pathological changes are reversible in contradistinction to the irreversible changes in chronic disorders.

A. Acute Brain Disorders

These are the organic brain syndromes from which the patient recovers. They are sub-classified according to the cause of the impairment of brain tissue function, i.e., Acute Brain Syndrome associated with systemic infection, drug or poison intoxication, circulatory disturbance, trauma, etc.

B. Chronic Brain Disorders

The chronic organic brain syndromes result from relatively permanent, irreversible impairment of brain tissue function. They are subclassified according to the cause of the impairment, i.e., Chronic Brain Syndrome associated with central nervous system syphilis, cerebral arteriosclerosis, senile brain disease, convulsive disorder, etc.

II. Disorders of Psychogenic Origin or Without Clearly Defined Physical Cause or Structural Change in the Brain

A. Psychotic Disorders

Psychoses due to psychogenic causes without clearly defined physical cause or structural change in the brain are included under this heading.

1. Involutional psychotic reaction
2. Affective reactions
3. Schizophrenic reactions
4. Paranoid reactions
5. Psychotic reaction without clearly defined structural changes, other than above

B. Psychophysiologic Autonomic and Visceral Disorders

This term is preferred to "psychosomatic disorders" since the latter term refers to a mind-body relationship rather than to specific conditions. It includes the "organ neuroses" and cases formerly classified as "cardiac neurosis," "gastric neurosis" and so forth. They are sub-classified according to the system or systems involved, i.e., psychophysiologic skin reaction, respiratory reaction, gastro-intestinal reaction, genito-urinary reaction, etc.

C. Psychoneurotic Disorders

The common denominator of these disorders is "anxiety," either consciously felt or unconsciously controlled by the utilization of various psychological defense mechanisms.

1. Anxiety reaction—The term is synonomous with the former term "anxiety state." It is characterized by diffuse anxiety not displaced to definite situations or objects as in the case of phobic reactions.
2. Dissociative reaction—Formerly this

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*General Staff Meeting, St. Francis Hospital, March 24, 1953.

**Chief Consultant, Psychiatric Department, St. Francis Hospital.

reaction has been classified as a type of "conversion hysteria." It represents a gross personality disorganization as seen in cases of fugue states, amnesias, and so forth.

3. Conversion reaction—The term "conversion reaction" is synonymous with "conversion hysteria." Instead of being experienced consciously, the anxiety is converted into functional symptoms in organs or parts of the body usually under voluntary control. Paralysis (paresis, aphonia, monoplegia and hemiplegia) of psycogenic origin are examples of this phenomena.
4. Obsessive-compulsive reaction — In this reaction the "anxiety" is unconsciously controlled by repetitive ideas or acts. It includes many cases formerly classified as "psychosthenia."
5. Depressive reaction—This term is synonymous with reactive depression. The reaction is precipitated by a current situation to which the person reacts with depression. It is to be differentiated from normal grief.
6. Psycho-neurotic reaction, others—under this classification will come all reactions considered psycho-neurotic and not classified elsewhere.

D. Personality Disorders

These disorders are manifested by a faulty life-long pattern of action or behavior rather than by mental or emotional symptoms.

1. Personality pattern disturbances—
   a. inadequate personality
   b. schizoid personality
   c. cyclothymic personality
   d. paranoid personality
2. Personality trait disturbance—
   a. emotionally unstable personality
   b. passive-aggressive personality
   c. compulsive personality
   d. personality trait disturbances, others
3. Sociopathic personality disturbance—
   a. antisocial reaction
   b. dissocial reaction
   c. sexual deviation
   d. addiction
      1. alcoholism
      2. drug addiction
4. Transient situational personality disorders—
   a. transient situational personality disturbance
   b. gross stress reaction
   c. adult situational reaction
   d. adjustment reaction of infancy
   e. adjustment reaction of childhood
   f. adjustment reaction of adolescence
   g. adjustment reaction of late life

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PSYCHOTHERAPY*

William A. Byrne, M.D.,**
Wilmington, Del.

Psychotherapy can be considered the art of treating mental diseases or emotional disorders by any measure, physical or mental, that favorably influences the mind or psyche. In my brief discussion, the physical or somatic forms of treatment will not be discussed.

Mental measures may be considered either symptomatic or causal in nature. Symptomatic therapy, also spoken of as short term therapy, directive therapy, reeducation, supportive, etc., is directed at removal of symptoms. Causal therapy, also known as long term therapy and insight therapy, non-directive therapy, is directed toward removing the cause of the symptom. Psychoanalysis is probably the most refined form of causal therapy.

The therapist must decide which form or forms of treatment are best suited to the individual case. Not every patient is suited for insight therapy, and some may even be harmed by insight that was forced upon them prematurely.

Both forms of therapy have certain factors in common such as:

1. Emotional support. Every patient hopes for relief and the opportunity to satisfy his regressive needs for dependence has a therapeutic effect.

2. Intellectual support. The opportunity to talk about his problems in a sympathetic atmosphere objectively helps to clarify the problem in his own mind.

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**Visiting Psychiatrist, St. Francis Hospital.

3. **Emotional discharge.** The patient is given a chance to express his emotions and allows the patient to see his problem more objectively. Other methods common to supportive therapy are reassurance and support of the patient's attempt at self-justification.

I have mentioned briefly the chief forms of psychotherapy and some common factors and some of the goals. Now a word about the therapist. The practice of professional psychotherapy is an art based upon principles of sympathy and understanding that makes use of specialized techniques not available to the ordinary layman. It is necessary that the therapist like people and wish to help them; that he be able to maintain a certain reserve or distance from the patient so he can be objective. He must be able to project himself into the "life history and personality of the patient." A common means of communication is necessary and the therapist is better equipped if he has some understanding of the social structure in which the patient is functioning.

Now for the patient. I think we ought to recognize that psychotherapy will not favorably influence all patients. The ideal patient is one whose symptoms cause enough discomfort that the patient himself wishes to get rid of the symptoms. It is not enough that his wife or mother or the law sends him to the therapist. Also, the therapist is not a cultist, and a person who comes because it is fashionable is not likely to be helped much.

The general practitioner—what kind of psychotherapy can he practice? Does the type of work he is called upon to do from day to day require a knowledge of psychotherapy and its value? There can be no denying this regardless of the term one wishes to apply—some call it a bedside manner, others refer to the "kindly family doctor." Osler urged the lavishing of doses of optimism—all are referring to what we speak of today as psychotherapy. As I have mentioned, there are varying degrees and types of psychotherapy. In many instances the family physician is well suited to provide many of the factors which will see the patient through his illness and on the way to recovery. However, there still remains the patient whose illness requires more than the symptomatic or supportive therapy who will require the services of the therapist who must employ more specialized techniques. Whether the patient avails himself of these services will to a great extent depend on the medical profession itself. How well it is understood and how much courage can be given the patient to seek and use the available help will depend on the recognition, acceptance, and interpretation of this therapy to the patient by the physician in general medicine.

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THE PHYSICIAN'S ROLE IN MARITAL PROBLEMS*

Charles J. Katz, M. D.,**
Wilmington, Del.

Like an army in which the thin edge of the fighting forces takes the greatest punishment, so too, does the general practitioner face the heaviest load and carry the burden for all of medicine. Especially in the field of problems relevant and related to marriage difficulties can he perform his greatest services.

The most complex and difficult type of interpersonal adjustment may be considered to be that of marriage. It is also the form of human relationship that is productive of the deepest gratifications in the physical, emotional, intellectual, and spiritual spheres, or it can be the most destructive kind of relationship producing, when it goes awry, neuroses, psychoses, psychosomatic disorders, and divorce, to say nothing of disturbed and disorganized children.

The physician by virtue of his intimate, personal type of service to and for his patients is in the position to do the most in many ways. He may serve as a kindly, understanding, parental-type of figure to those who are contemplating marriage by helping them to understand the need for a complete evaluation of themselves during the courtship, when each prospective bride and bridegroom must sit down and try to understand each other from the point of view of what each has done in the past, is doing now, and what each can be expected to do in the future.

The family doctor may, by his objective understanding of the mature love relationship, be able to help those planning to marry and those already wed and in trouble. He can provide them with an understanding of the physical, sensual, organic-instinctual needs of both male and female. Progressing from this, he will be able to help them organize the tender, affectionate, romantic relationship so necessary in marriage. He will show them the need for a real friendship with the partner and how to develop the characteristics of dependability, understanding, and acceptance of each other on a mature basis. Finally, he will help them to achieve a satisfactory intellectual or sublimated type of relationship with much emphasis on the value of a spiritual outlook and approach to the many never-ceasing problems which arise in the marital state.

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*General Staff Meeting, St. Francis Hospital, March 24, 1953.

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All this can be done if the physician himself, and who else, by training, preference, experience, and example can do it better, can provide his patients with the understanding and means whereby they can become aware of measures by which they can build for themselves, the marital partner, and their children, the greatest degree of personal security. This means that the family doctor must use every opportunity, when it is offered, to provide an understanding of the value of a healthy body, a happy home, a means whereby a livelihood can be earned or useful work done, an adequate number of real friends, and a spiritual outlook and aspiration.

NO TRUCE WITH TB

Donald S. King, M. D.,*
New York, N. Y.

It was Saturday afternoon on Okinawa, that war-famed island in the far Pacific. The month was February 1952. In the auditorium of the United States Army Hospital there were gathered many Okinawans and Americans who were interested in the control of tuberculosis among the island population as well as in the United States troops who were in contact with them. Even in this far-away spot there was excitement over news that had made the headlines of the New York papers only a few days before. Science had discovered a new pill which made bed-ridden tuberculosis patients feel "so simply wonderful" that they were "dancing in the corridors." Since that day more than a year has passed and some of those who danced are dead.

What, then, is the place of drugs, the old and the new, in the treatment of tuberculosis and what is the effect of this "chemotherapy" on the tuberculosis campaign?

There is no doubt, after a seven-year trial, that certain drugs are very helpful in treating tuberculosis. So, for the first time in history, we have drug treatment to add to the time-tried but never really satisfactory formula of "rest, fresh air, and good food," and the later treatment by pneumothorax, pneumoperitoneum, thoracoplasty, and surgical removal. By February, 1952 it had been determined that the most effective drug treatment was a combination of streptomycin and para-aminosalicylic acid (PAS). Then came the exciting new drug which is now officially named "isoniazid" but may be referred to by at least half a dozen other trade names. As intimated above, isoniazid has not lived up to the original expectations, but by itself it is a better drug than PAS and it is hoped that the combination of streptomycin and the pleasant isoniazid will be as good or better than streptomycin plus the rather unpleasant PAS. Time and much careful study will tell.

But there is as yet no evidence that drug treatment can replace bed rest and surgery. It is only an extraordinarily useful addition to older methods of treatment. However, it may shorten the period of bed rest and sanatorium care, and it may improve the condition of many patients sufficiently to warrant an operation previously considered too dangerous.

But there is no hope that chemotherapy is so effective it will wipe out tuberculosis in a few years' time and so make other efforts to control tuberculosis unnecessary.

It is true that death rates are dropping rapidly in most cities in the United States, but it is also true that in many cities the drop has not continued when federal or local health organizations have stopped their x-ray surveys and other control measures. And it is alarmingly true that tuberculosis is still the first cause of death from disease in young adults and that there is no decrease in the number of active cases discovered in the older males.

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*President, American Trudeau Society.

Therefore, there must be no slackening in our efforts to fight tuberculosis. We must still conduct x-ray surveys to find early or asymptomatic disease; provide facilities for perhaps yearly x-ray checks of large portions of the population; continue the campaign to have chest x-rays of all hospital admissions and all hospital personnel; continue the support of research workers who are studying fundamental scientific problems, and help provide special instruction in lung disease for medical students and non-specializing doctors. These and many other problems will need our constant attention.

But someone has to provide the money which makes such studies possible. The Christmas Seal sales have, through the years, provided the life blood for the volunteer citizens campaign against tuberculosis. At the present time in the state of Delaware Christmas Seal funds of the Delaware Anti-Tuberculosis Society have made possible their Statewide Chest X-ray Survey. It is expected that more than 40,000 Christmas Seal dollars will be spent on this Survey alone. The other activities of the Delaware Anti-Tuberculosis Society have not been curtailed. The Society therefore hopes to have a very successful Seal sale this year. The Seal sale, which is the 47th annual sale, opens on Monday, November 16th.

NEW LEGISLATION

Three Bills which directly affect the medical profession were passed at the last Legislature.

One of these bills doubled the license fees for all occupations, including that of physicians. This Bill appears as Chapter 346, Volume 49, Laws of Delaware, beginning on page 723. Approved by Governor 7/10/53. Copies of the other two Bills are printed herewith.

House Bill No. 387 With House Amendment No. 1 and House Amendment No. 2

An Act to Amend Title 11, Delaware Code of 1953 entitled "Crimes and Criminal Procedure" by providing for reports in Cases of Epilepsy.

Be it enacted by the General Assembly of the State of Delaware:

Section 1. Chapter 1, Title 11, Delaware Code of 1953 is amended by adding a new section thereto as follows:

108. *Reports of epilepsy; limitation on use*

Every physician attending or treating epilepsy shall report within one week to the Department of Motor Vehicles the names, ages and addresses of all persons treated as cases of epilepsy.

The reports shall be for the information of the Department of Motor Vehicles in enforcing the provisions of the Motor Vehicle Law. Said reports shall be kept confidential and used solely for the purpose of determining the eligibility of any person to operate a motor vehicle on the highways of this State.

"A physician failing to make such a report shall be fined not less than Five Dollars ($5.00), nor more than Fifty Dollars ($50.00) and costs for each such report he fails to make."

This Bill appears as Chapter 234, Volume 49, Laws of Delaware, beginning on page 439. Approved by Governor 7/1/53.

House Bill No. 392 With House Amendment No. 1

An Act to Amend Titles 11, Delaware Code of 1953, entitled "Crimes and Criminal Procedure" by providing for reports of treatment of wounds caused by firearms.

Be It Enacted By The General Assembly of The State of Delaware:

Section 1. Chapter 1, Title 11, Delaware Code of 1953 is amended by adding a new section thereto as follows:

107. *Reports of treatment of wounds caused by firearms*

Every physician attending or treating a case of bullet wounds, gunshot wounds, powder burn, or other injury arising from or caused by the discharge of a gun, pistol, or other firearm, or whenever such case is treated in a hospital, sanitarium or other institution, the manager, superintendent or other person in charge shall report such case at once to the police authorities of the city or town where such physician, hospital, sanitarium or institution is located or to the State Police. The provisions of this section shall not apply to such wounds, burns or injuries received by a member of the armed forces of the United States or the State of Delaware while engaged in the actual performance of duty.

Whoever fails to make such report shall be fined not less than $25.

This Bill appears as Chapter 235, Volume 49, Laws of Delaware, beginning on page 440. Approved by Governor 7/1/53.

+ Editorials +

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Vol. 25 November, 1953 No. 11

The 1953 Meeting

The 164th Annual Session of the Medical Society of Delaware was held at the Hotel DuPont, Wilmington, October 12-14, 1953, President Victor D. Washburn, presiding.

A meeting of the Council was held in Wilmington on September 28th, which passed on many routine matters, thus making it possible for the meeting of the House of Delegates to proceed more quickly and more efficiently. The most important items considered had to deal with legislation, passed by the last Legislature, affecting the medical profession. The full transactions will be printed in the December issue of The Journal.

The scientific meetings proceeded exactly as printed in the July Journal. These papers were all of a high order and were well received and adequately discussed.

The elections for the year 1954 resulted as follows:

President, Hewitt W. Smith .... Harrington
President-elect, Lewis B. Flinn .... Wilmington
Vice-President, Glenn M. VanValkenburgh Georgetown
Secretary, Norman L. Cannon .... Wilmington
Treasurer, Charles Levy .... Wilmington
Rep. to D.A.M., W. Oscar LaMotte .... Wilmington

The Woman's Auxiliary met at the same time at the Delaware Academy of Medicine, under the Presidency of Mrs. Willard F. Preston, of Wilmington. The following officers for 1953-54 were elected and installed:

President, Mrs. Allan R. Crutchley ... Middletown
President-elect, Mrs. Gerald A. Beatty Wilmington
Vice-President, Mrs. Glenn M. Van Valkenburgh .... Georgetown
Secretary, Mrs. I. Lewis Chipman, Jr., Wilmington
Treasurer, Mrs. Lawrence L. Fitchett .... Milford

The social events of the Society and the Auxiliary were held according to schedule, and were enjoyed by large audiences at each. The main event was the reception and dinner on October 13th, followed by a very interesting address by Dr. Thomas H. Alphin, Assistant Director of the AMA's Washington office, on the workings of that office.

The technical exhibits were all good, and again reacted a new high for income. The Society is grateful to them for their financial assistance to our meeting. Ours is a small Society and an occasional comparison with a large one is illuminating. The Pennsylvania Society held their 103rd session at Harrisburg, September 21-24, 1953. We give below the registration figures from our meeting and theirs:

1953	Delaware	Penna.
Members	161	1533
Guests, Visitors	53	633
Internes, Students	8	114
Exhibitors	48	351
Woman's Auxiliary	104	352
Total	374	2983
Membership	(1953) 348	(1950) 11,012
% Registered	46.2	13.9

We were informed a couple of years ago that, throughout the U. S., the average state medical meeting showed 30-35% of their membership in attendance. We believe this figure is much too high.

So passes into history the 1953 Session. Now let us turn our faces towards Dover, October 11-13, 1954, and make the next Session an even better one.

MISCELLANEOUS

What Can Happen in 20 Years

I saw an interesting article by Paul L. Martin, chief of the Washington Bureau of the Gannett newspapers, in the October issue of the *American Mercury*. The facts he revealed certainly set a person to thinking. His article deals with government spending during the 20 years just ended. Here is the record:

In those 20 years, the government spent more than $775,000,000,000 and ran up a net deficit of more than $239,000,000,000. In other words, it spent almost half again as much as it was able to collect, despite ever-increasing taxes.

At the end of fiscal 1933, the national debt amounted to a fraction less than $180 for each American. Now the figure is above $2,000.

In 1933, a typical family with a $4,000 a year income paid $44 in federal income taxes —now it must pay close to $500.

In the last fiscal year, tax collections were 2,100 per cent greater than in 1933.

Read those figures again. Then answer this question: How long can any nation stand such a trend without going bankrupt?

AMA Secretary's Letter, No. 271,
October 30, 1953

Today's Health Wins Two Awards

Today's Health, published by the A.M.A., recently won two awards in the fourth annual magazine show of the American Institute of Graphic Arts in New York. Ninety-two layouts were selected for awards and exhibition from some 2,000 entries.

This was the first time since 1951 that Today's Health had entered the A.I.G.A. show, the most important magazine show in this hemisphere. It also won two awards at that time.

One of the winning layouts, designed by Artist Charles Turzak, was for the article, "How to Read Science Stores." Written by Patricia Jenkins, assistant managing editor of Today's Health, the article was published in the May issue, and is being reprinted in a handbook for college science teachers.

AMA Secretary's Letter No. 271,
October 30, 1952

BOOK REVIEWS

Diseases of the Heart and Arteries: Antomical and Functional Details of the Circulation: Treatment. By George R. Herrmann, M.D., Professor of Medicine, University of Texas. 4th ed. Pp. 652, with 219 illus. Cloth. Price, $12.50. St. Louis: C. V. Mosby Company, 1952.

The first edition of this book, entitled "Synopsis of Diseases of the Heart and Arteries," appeared during your reviewer's first year in practice; one copy on his desk and another on his bedside table attest its usefulness as a reference volume. The fourth edition has grown to a point where it no longer claims to be a synopsis, in which class it was outstanding, but another of a large number of textbooks on the subject. Dr. Herrmann's masterful pedagogy is evident on each page; material is present that is not readily available elsewhere. For these reasons alone, any physician with more than a superficial interest in heart disease should be familiar with the book. It cannot be recommended to an individual as his *only* text on the subject, because there are other better balanced books available.

Clinical Diagnosis By Laboratory Methods —A Working Manual of Clinical Pathology. By James Campbell Todd, M.D., Late Professor of Clinical Pathology, University of Colorado; Arthur Hawley Sanford, M.D., Emeritus Professor of Clinical Pathology, The Mayo Foundation, University of Minnesota; Benjamin B. Wells, M.D., Professor of Medicine, University of Arkansas. School of Medicine. 12th Edition. Pg. 998, with 946 illustrations, 197 in color, on 43 figures. Cloth. Price, $8.50. Philadelphia: W. B. Saunders Company, 1953.

This standard reliable text has added a new co-author, Dr. Wells, a name well known in the field of pathology. The twelfth edition follows the general pattern of the previous fine complete revision with a few necessary additions to help keep it up to date.

As in previous editions this book serves an ideal purpose for the medical student and the physician but is less serviceable for the medical technician or general laboratory, although no laboratory should dare be caught without this volume on its reference shelf.

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Greenhill[1] suggests that Metamucil be given every other night. He also recommends that Metamucil be given in conjunction with a proper diet, during the lying-in period of the puerperium.

Metamucil is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

1. Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 10, Philadelphia, W. B. Saunders Company, 1951, pp. 103-104; 311; 332.

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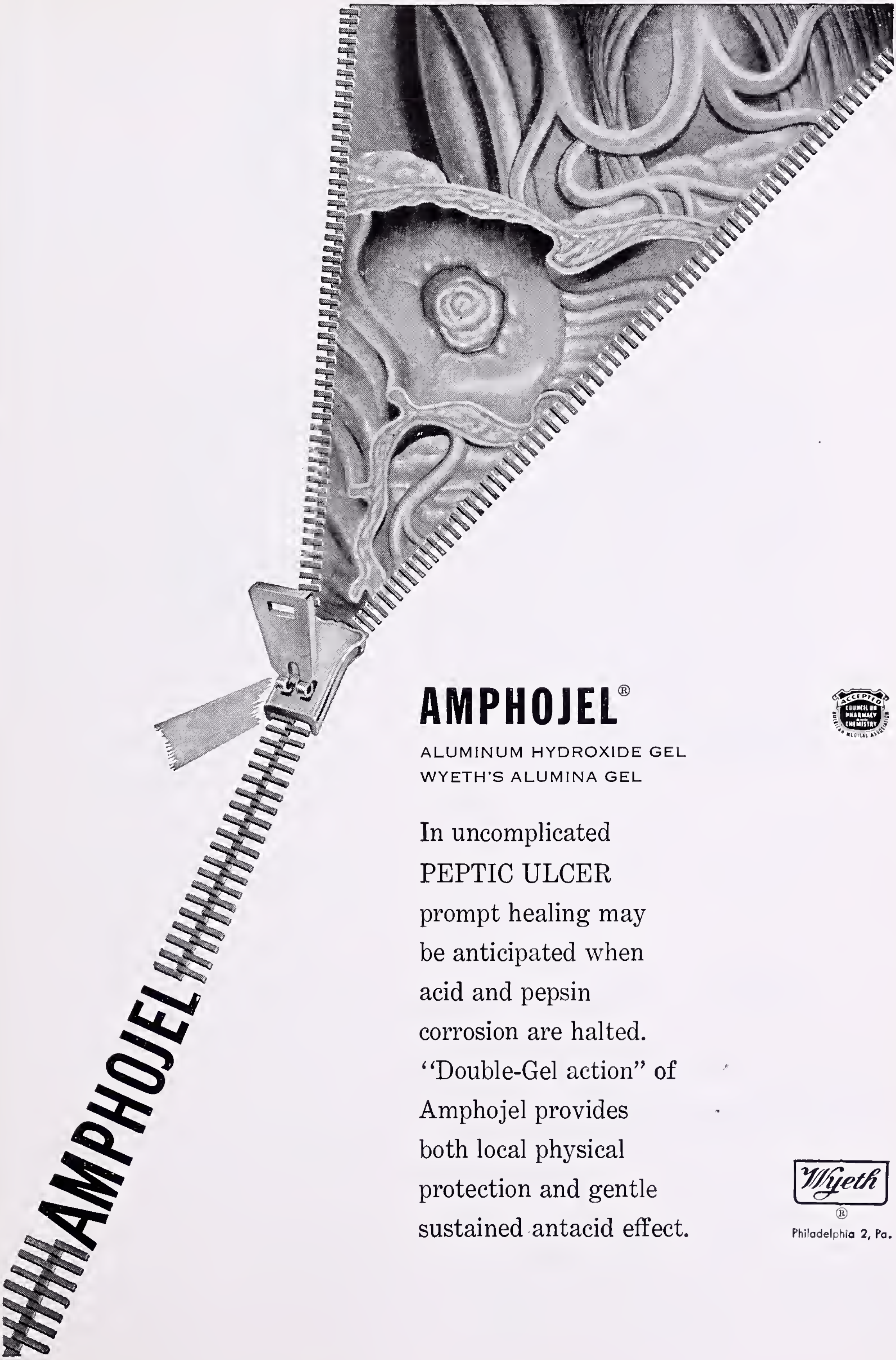

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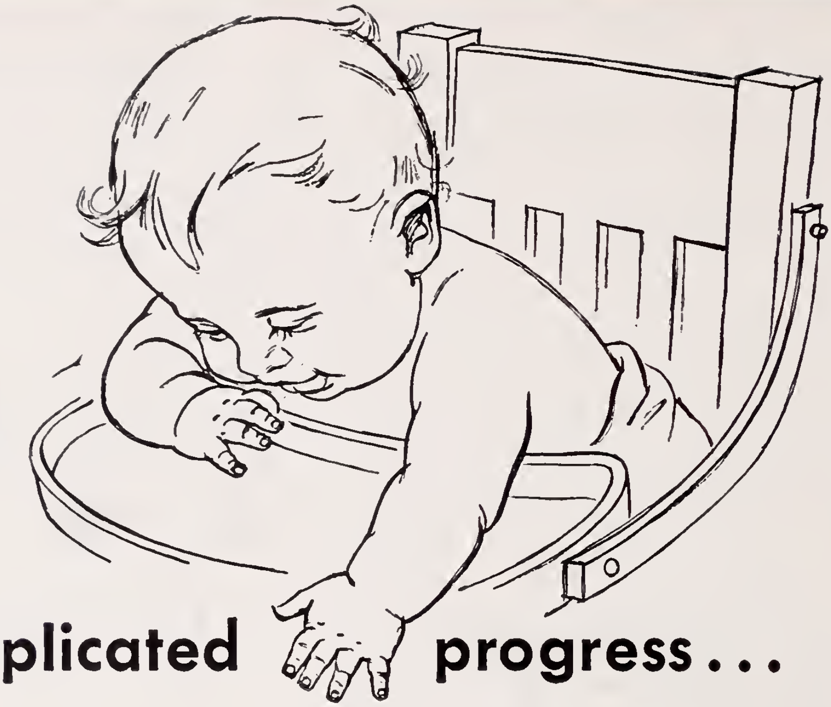

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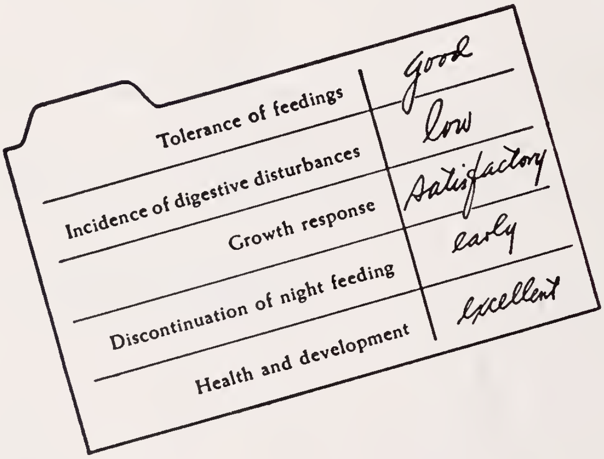

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[1] Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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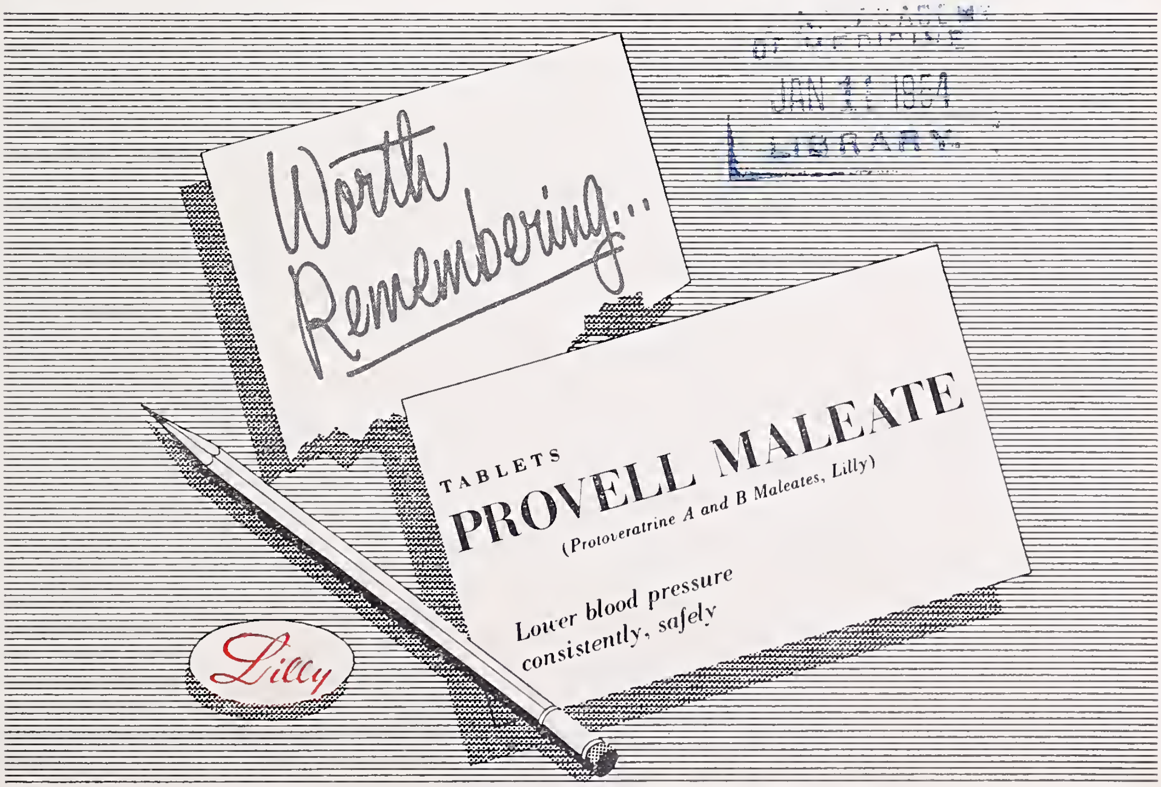
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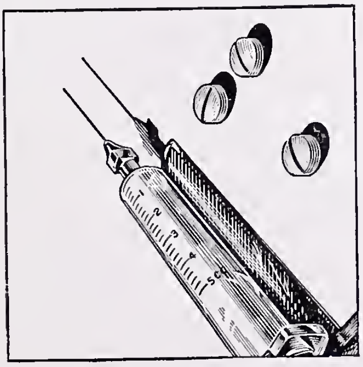

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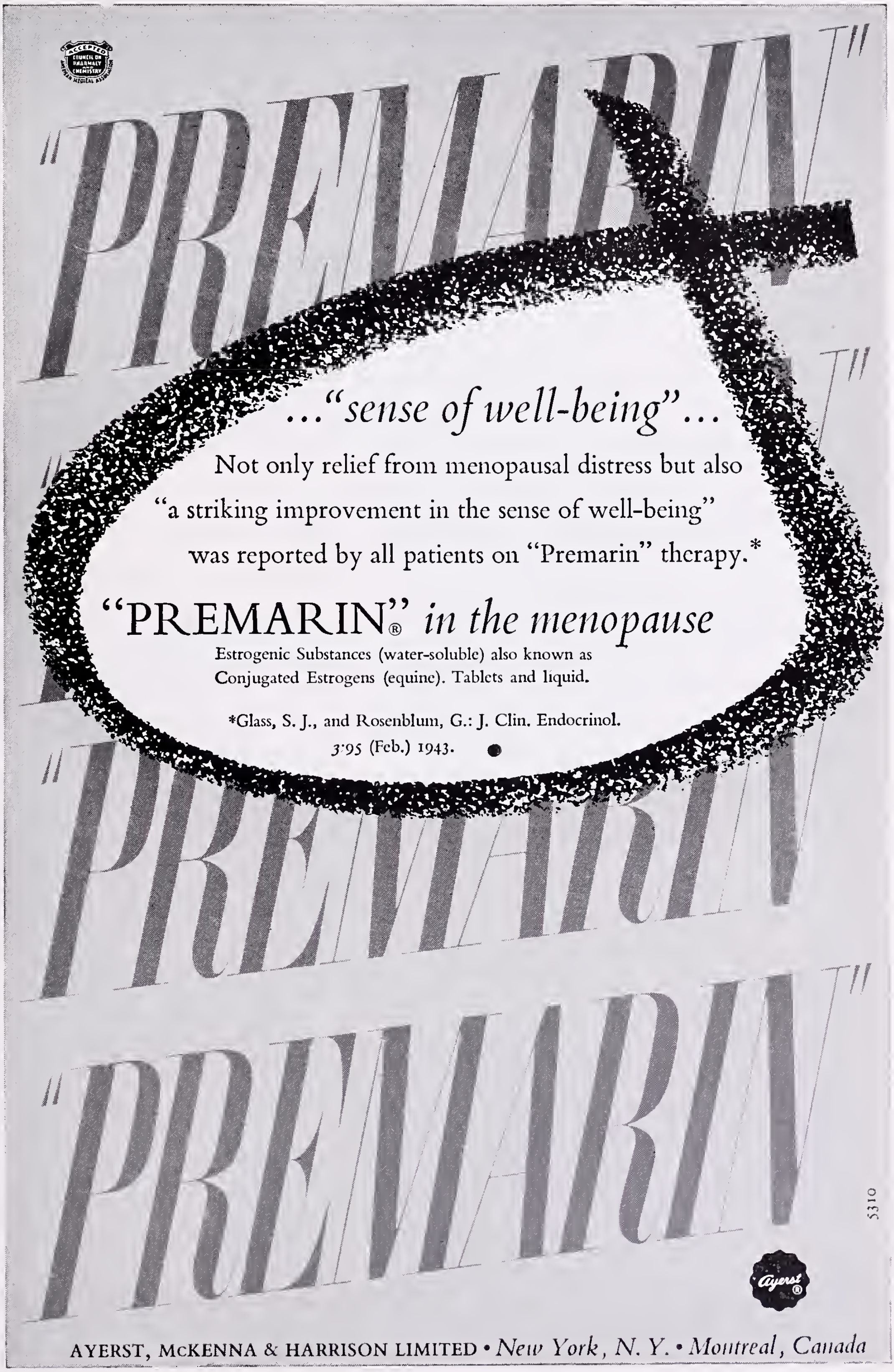

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*Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943.

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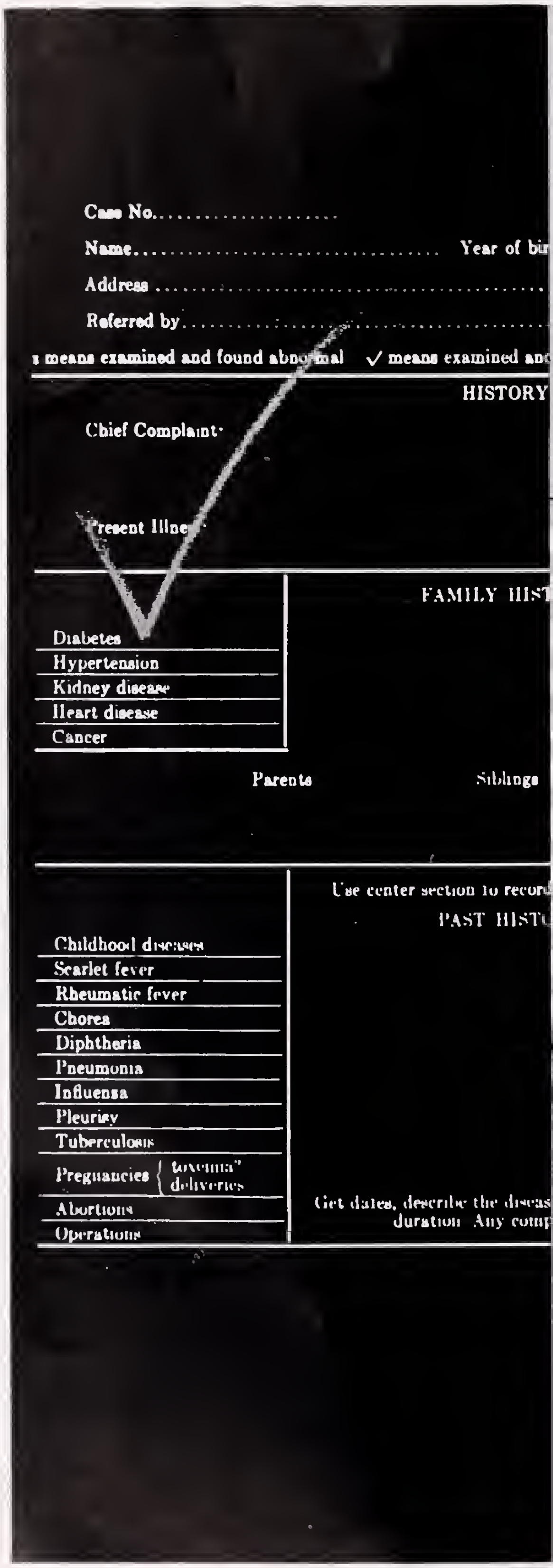

Case No....................

Name.................................... Year of bi

Address ....

Referred by...

means examined and found abnormal ✓ means examined an

HISTORY

Chief Complaint·

Present Illne

FAMILY HIS

- Diabetes
- Hypertension
- Kidney disease
- Heart disease
- Cancer

Parents Siblings

Use center section to recor

PAST HIST

- Childhood diseases
- Scarlet fever
- Rheumatic fever
- Chorea
- Diphtheria
- Pneumonia
- Influenza
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- Tuberculosis
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when the history hints at diabetes

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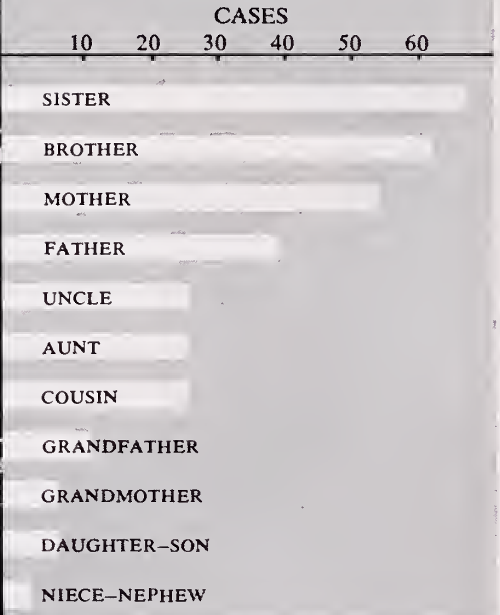

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1. Barach, J. H.: Diabetes and Its Treatment, New York, Oxford University Press, 1949, p. 38.
2. Allen, F. M.: Diabetes Mellitus, in Piersol, G. M., and Bortz, E. L.: Cyclopedia of Medicine, Surgery, Specialties, Philadelphia, F. A. Davis Company, 1951, vol. 4, p. 505.

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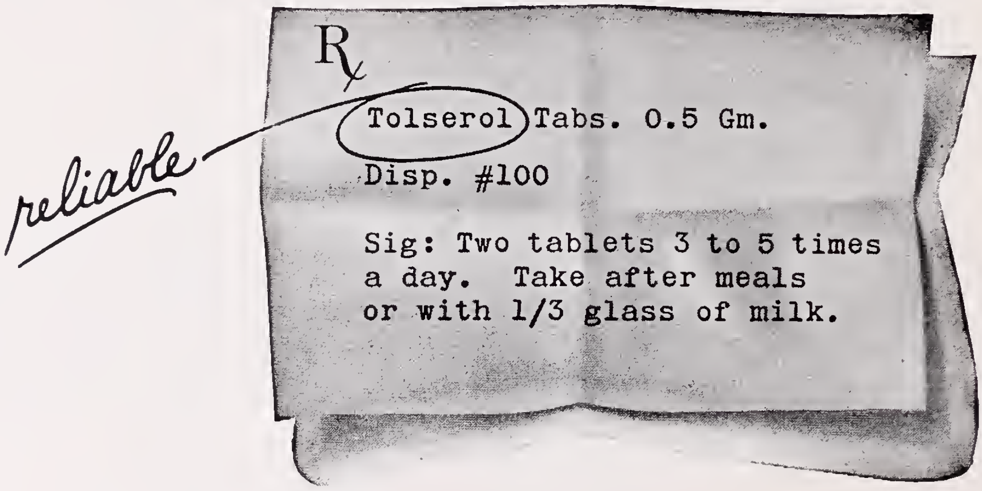

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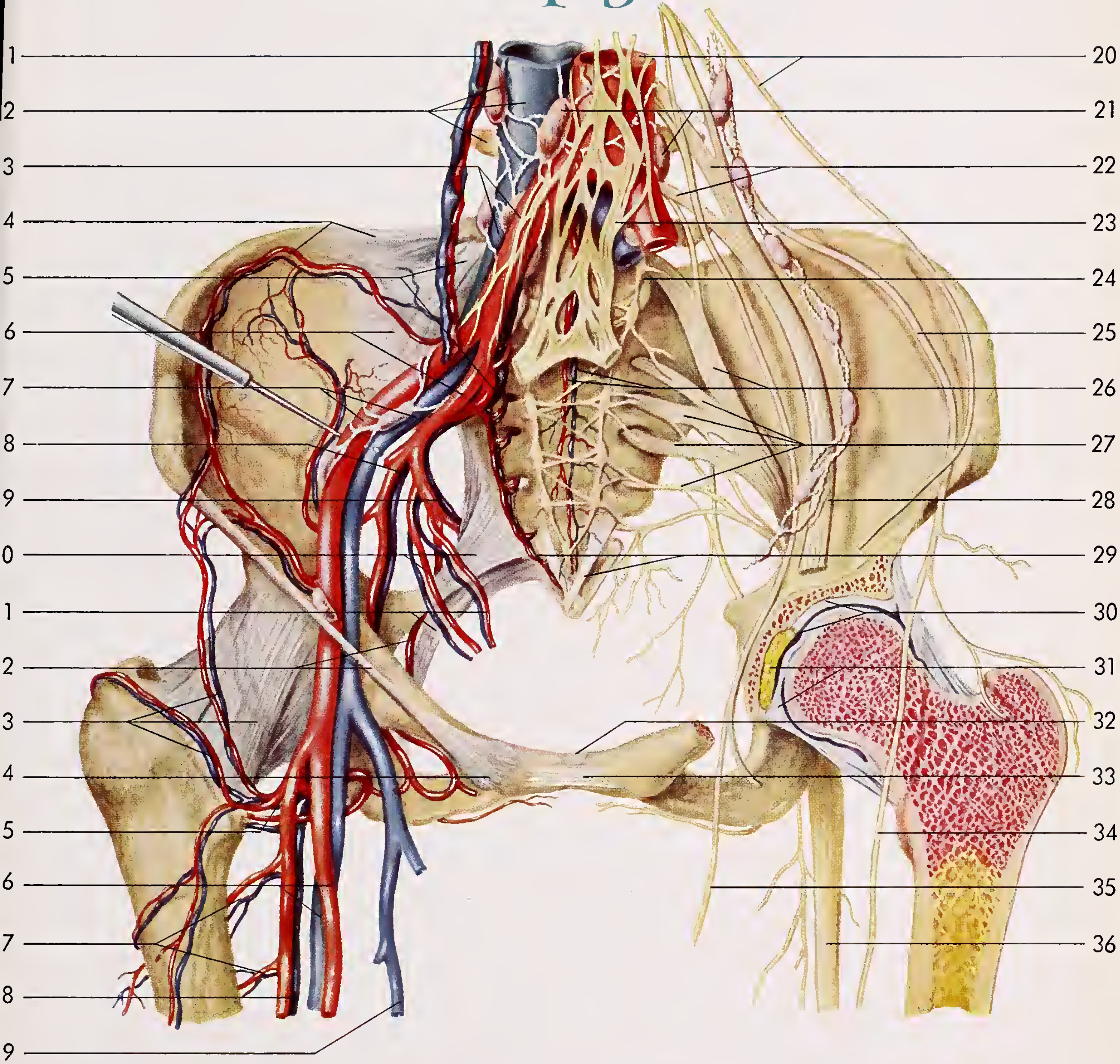
Anatomy *of the* Pelvis *and* Hip Joint



1 Ovarian artery and vein
2 Vena cava; lumbar lymph nodes
3 Right common iliac artery and vein
4 Iliolumbar ligament; branches of iliolumbar artery and vein
5 Lumbosacral ligament; superior gluteal artery and vein
6 Anterior sacroiliac ligament; internal iliac (hypogastric) artery
7 External iliac artery and vein
8 Obturator artery and vein
9 Inferior gluteal artery and vein
10 Sacrospinous ligament; uterine artery and vein
11 Sacrotuberous ligament; vaginal artery and vein
12 Inguinal ligament; internal pudendal artery
13 Iliofemoral ligament; branches of lateral femoral circumflex artery and vein
14 Lacunar ligament
15 Lateral femoral circumflex artery and vein
16 Femoral artery and vein
17 Perforating arteries and veins
18 Deep femoral artery and vein
19 Great saphenous vein
20 Aorta; ilioinguinal nerve
21 Lateral aortic lymph nodes
22 Lumbar nerves
23 Hypogastric sympathetic plexus
24 Sympathetic trunk
25 Lateral femoral cutaneous nerve
26 Middle sacral artery and vein; lumbosacral trunk
27 Sacral nerves
28 Femoral nerve
29 Lateral sacral artery and vein; anterior sacrococcygeal ligament
30 Lunate articular cartilage; joint cavity
31 Acetabular fat pad; ligamentum teres
32 Interpubic fibrocartilage
33 Superior pubic ligament
34 Anterior branch of lateral femoral cutaneous nerve
35 Obturator nerve
36 Great sciatic nerve

This is one of a series of paintings by Paul Peck, illustrating the anatomy of various organs and tissues of the body which are frequently attacked by infection, where aureomycin may prove useful.

Lederle

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DIPLOPIA WITH INTRACRANIAL ANEURYSM

J. Robert Fox, M. D.,
and
Eugene R. McNinch, M. D.,
Dover, Del.

The symptom diplopia confronts the ophthalmologist with a challenging problem in differential diagnosis. To the patient who has enjoyed binocularity all his life, double vision comes as a startling disturbance in his visual experience. Such a dramatic deviation from the normal usually brings the patient to seek medical help soon after the onset. Although there are many and varied causes for diplopia, among them spasms and intoxications, the greatest service can be done for the patient who is harboring an intracranial space-taking lesion.

By examining the extraocular muscles in their fields of action, paralysis of individual muscles can readily be ascertained. The malfunctioning muscles can then be related to the innervation of the III, IV, and VI cranial nerves. More perplexing, however, is the precise location of the lesion causing interruption of the nerve function, and in addition, the nature of the lesion needs clarification.

Not all space-taking lesions in the cranium are accounted for by neoplasms. Improvements in roentgenologic techniques have added new weapons with which indirect diagnosis of intracranial lesions can be made. When erosion of the dorsum sellae is demon-

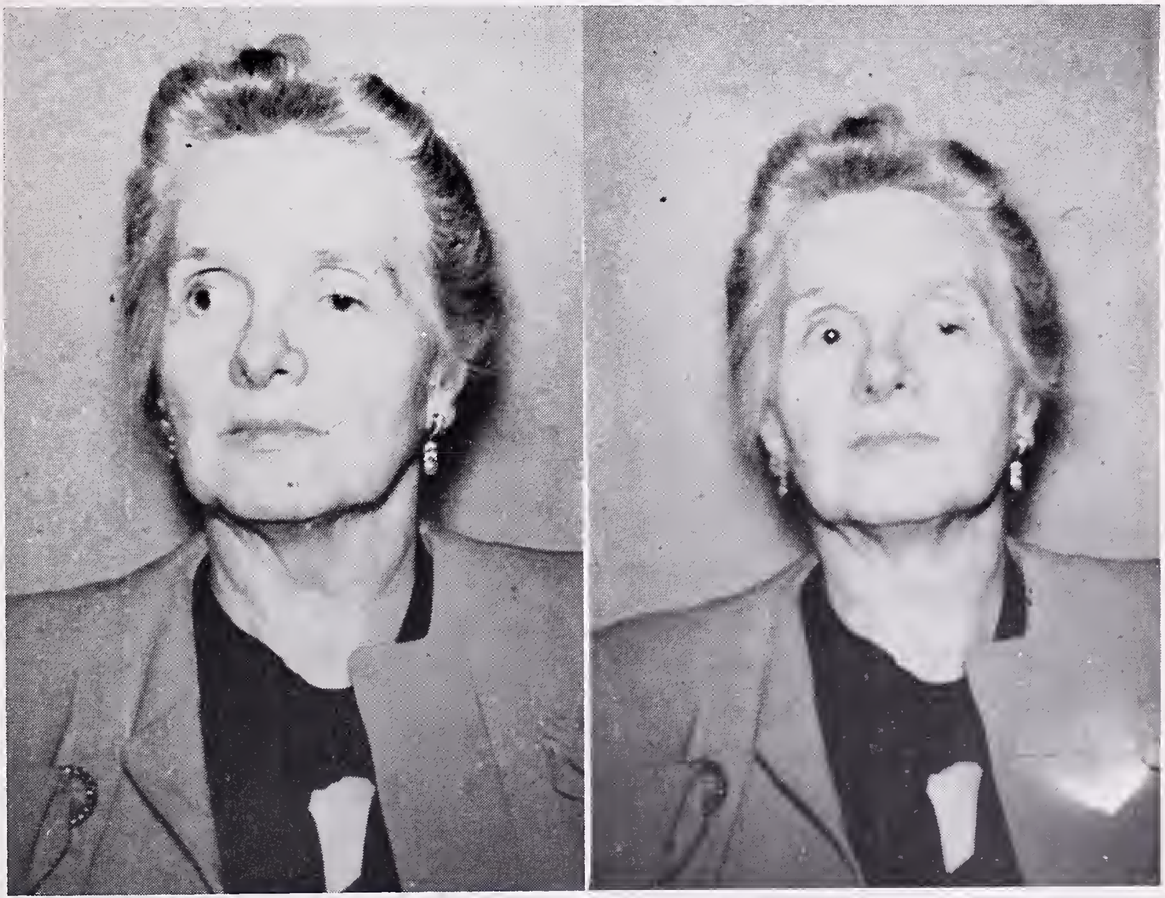

FIG. 1

Mrs. H. S. Left III nerve palsy with partial ptosis.

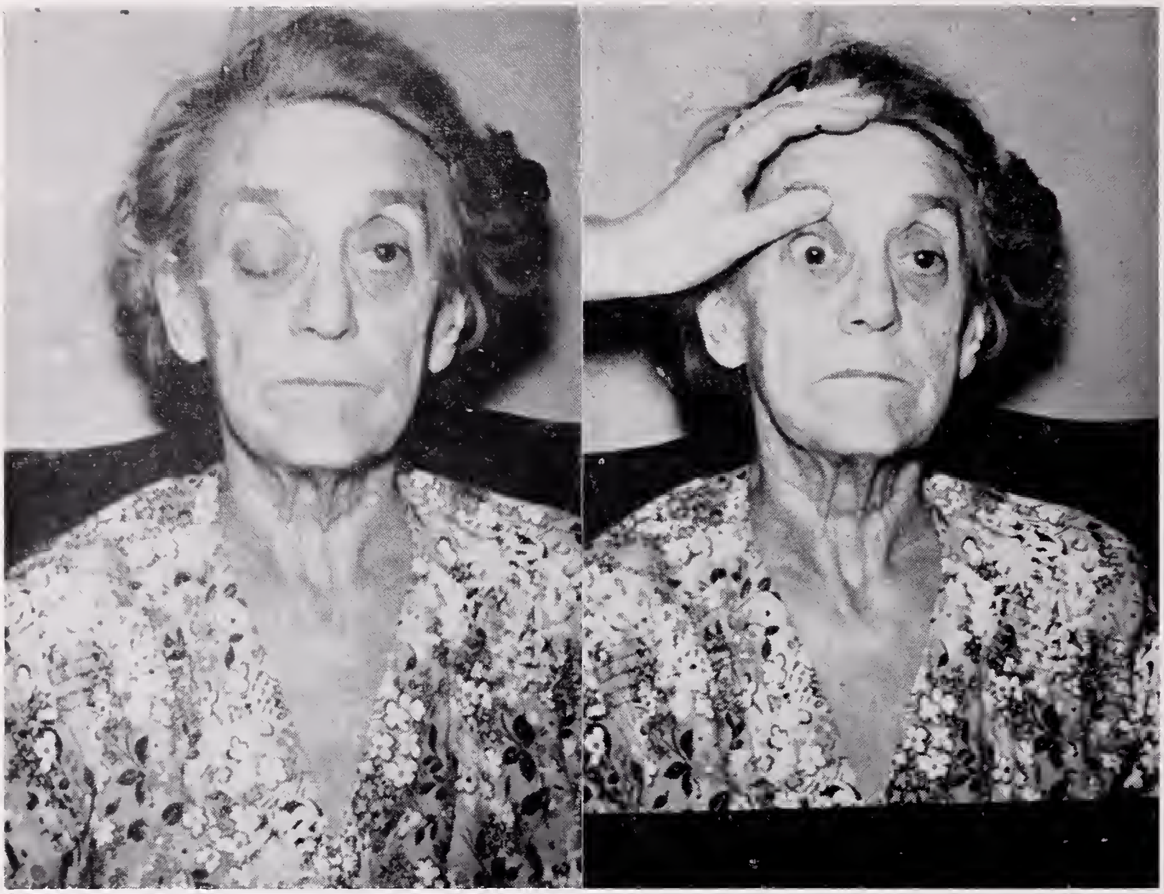

FIG. 2

Mrs. M. R. Paralysis of right III, IV, VI, and corneal V cranial nerves.

strated on roentgen examination of the skull one of the important possibilities to be considered is an aneurysm of the internal carotid artery. In the older age group of patients when an eroded dorsum sellae is found in combination with curvilinear calcifications in the area, there is even stronger evidence that an aneurysm is present. Further studies by carotid angiography are an essential part of every neurosurgical evaluation and will be a determining factor in the consideration of any therapy.

The following two case histories will describe aneurysms of the internal carotid artery and posterior communicating artery causing ocular palsies and diplopia.

Mrs. H. S., a sixty-one year old white female, presented herself with the complaint of diplopia when looking to the right. Her vision was corrected to 20/20 in each eye. There was ptosis of the left upper eyelid, a partially dilated left pupil, complete paralysis of the left superior rectus, inferior oblique, medial rectus, and partial paralysis of the levator. Head turning to the right helped avoid diplopia. Corneal sensitivity was normal bilaterally. Grade two arteriosclerotic changes were present in both fundii. No papilledema and no proptosis were present. Ocular tension and visual field studies were normal. It was assumed that the left III cranial nerve function had been interrupted and a roentgenologic consultation was requested of Dr. Eugene R. McNinch.

(Fig. 1)

Examination of the skull, including optic foramen views, showed the bones of the cranial vault to be within normal limits in texture and density. The sella tursica was within normal limits in size. The dorsum was pneumotized and showed no evidence of erosion. The petro-clenoid ligaments were partially calcified. The optic formaina were normal in appearance. There was no roentogen evidence of intracranial abnormality.

Left arteriograms were done by Dr. Rudolph Jeager's neurosurgical service at Jefferson Hospital. A small aneurysm of the left posterior communicating artery was found. An aneurysm arising in this suprasellar and intracerebral site is usually smaller and less likely to produce roentgen changes on the routine films of the skull than aneurysm of the cavernous portion of the internal carotid artery which are parasellar. The patient refused surgical intervention.

(Fig. 2)

Mrs. M. R., a sixty year old white female, presented herself with complete ptosis of the right eye, duration one week. Corrected vision was 20/40 O.D. and 20/20 O.S. Gradual onset of the ptosis had occurred one year ago. All six right extraocular muscles were paralyzed, with resultant fixation of the globe. The pupil did not react to light and was partially dilated. Right corneal sensitivity was absent. There was no papilledema. The visual field and ocular tension were both normal. It was assumed that the function of the right III, IV, VI cranial nerves and the corneal division of the right V were all absent. A roentgenologic consultation was requested of Dr. Eugene R. McNinch.

(Fig. 3)

Routine lateral roentgen examination of the skull revealed an erosion of the dorsum sellae and irregular curvilinear calcification about the sella turcica. The bones of the cranial vault are normal in texture and density except for a mild hyperosteosis frontalis interna. The pineal gland is calcified and is not displaced. The findings correlated with the clinical impression indicating a possible aneurysm of the internal carotid artery.

Neurosurgical studies including a right side arteriogram were carried out by Dr. George W. Smith of Johns Hopkins Hospital. A large aneurysm of the right internal carotid artery within the right cavernous sinus was demonstrated. Because of this location surgical treatment was thought inadvisable.

These two case histories will serve to dem-

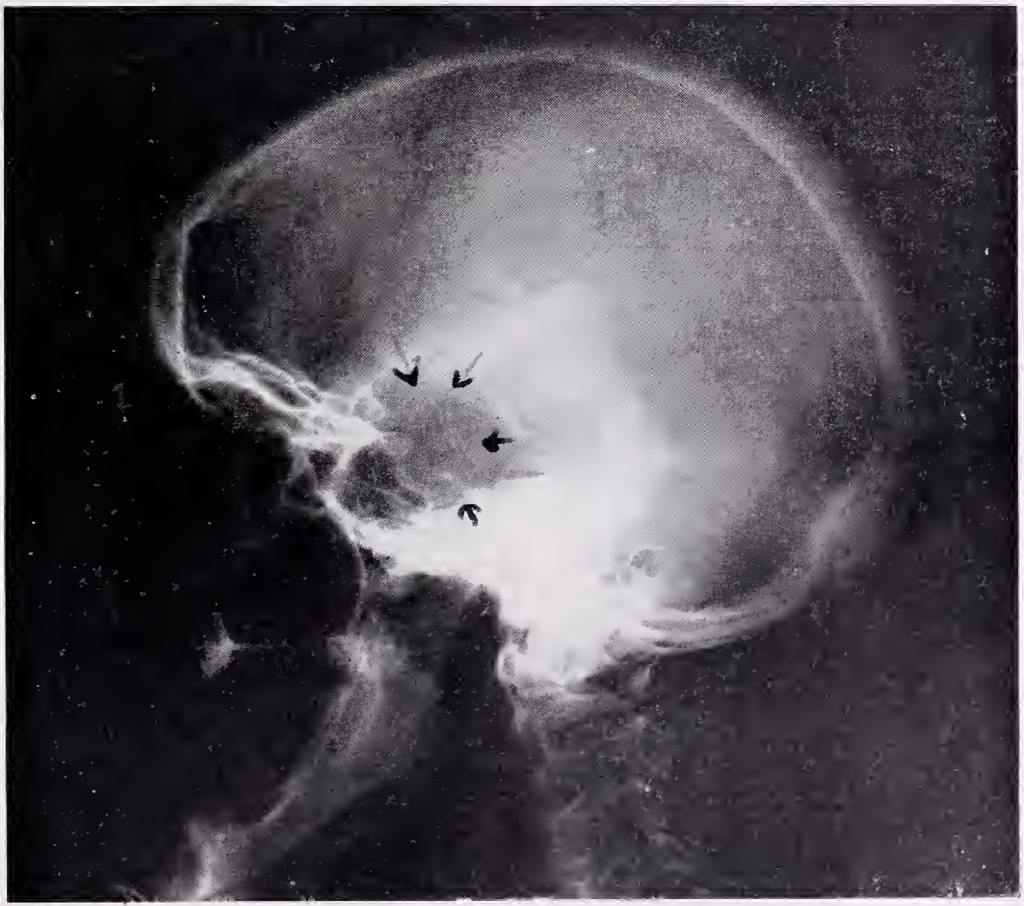

FIG. 3

Mrs. M. R. Skull studies showing erosion of the dorsum sellae and curvilinear calcification about the sellae.

onstrate how the coordinated efforts of the ophthalmologist, roentgenologist, and neurosurgeon can serve the patient with diplopia and intracranial aneurysm. Although neither of the described patients received surgical treatment, the literature now records a substantial number of complete cures achieved by competent neurosurgery.

42 S. State Street

MYCOTIC RAT-BITE FEVER

Report of a Case

David A. Toren, M. T.,*
Milford, Del.

There are two distinct kinds of disease which may follow the bite of rats and which are designated as rat-bite fever. Their etiology is completely different but clinically the diseases are not dissimilar. Since therapy is based entirely on etiology, differential diagnosis is essential.

The occurrence of an instance of mycotic rat-bite fever is used to reemphasize salient features.

Case Report

Mrs. S. W., a 79 year old white female of Frankford, was admitted to Milford Memorial Hospital on June 29, 1953. She stated that two weeks prior to admission she had been bitten on the right thumb by a rat. Since June 28, 1953 she had complained of fever, nausea, vomiting, a painful thumb and some pain in the right upper quadrant. She had been treated with a total dosage of 300,000 units of penicillin prior to admission.** She had a previous history of hysterectomy in 1944.

Her physical examination disclosed only some tenderness in the right upper quadrant and a swollen, blue right thumb with no visible opening or discharge.

The necrotic skin of the thumb was excised by sharp dissection.***

The thumb was treated with furacin ointment, argarol, normal saline soaks and Dakin's solution. 3,600,000 units of penicillin, 4.5 grams of dihydrostreptomycin, 10,500 milligrams of terramycin and 20 grams of gantricin were administered.

The patient was afebrile from July 9, 1953 and the thumb was healing slowly. She was discharged on July 11, 1953.

Laboratory Examinations

Hematology: June 30, 1953, RBC, 4,120,000; Hb, 12 grams per cent; color index 1.03; WBC 6,100 per cu. mm. July 9, 1953, Hb. 13 grams per cent; WBC 13,600 with 58 per cent segmented neutrophils, 1 per cent band forms, 6 per cent eosinophiles, 33 per cent lymphocytes, and 2 per cent monocytes.

Urinalysis: Straw, cloudy, acid; Sp. Gr. 1.025; albumin 3 plus; sugar-negative; 20-25 leukocytes per high power field and 3-6 epithelial cells per high power field.

Bacteriology: Fluid from thumb was cultured in fluid thioglycollate medium and on blood agar with an infusion base under anaerobic conditions with increased CO_2 tension; at six days a granular growth was noted in fluid thioglycollate and granular, mildly hemolytic colonies on blood agar. Growth on blood agar continued under aerobic conditions.

The organism was Gram-negative with irregular staining and pleomorphic in appearance, with branching irregular bacilliary forms. It was identified as Actinomyces muris-ratti. No other organisms were isolated.

The results of antibiotic sensitivity tests were as follows: aureomycin, negative; bacitracin, 2 plus; chloromycitin, 1 plus; dihydrostreptomycin, 2 plus; erythromycin, 3 plus; penicillin, negative; polymixin B, negative; terramycin, negative.

Discussion

Classical rat-bite fever or sodoku is caused by a spiral microorganism which has been variously classified as Spirillum minus, Carteria minus, Borellia minus, Spirocheta morsus-muris, etc. Mycotic rat-bite fever is caused by an organism known as Actinomyces muris-ratti, Actinomyces muris, Streptobacillus moniliformis, Streptothrix muris-ratti, and Haverhillia multiformis.

Mycotic rat-bite fever is a systemic disease characterized by prolonged fever of the relapsing type, arthritis and abscess formation that may resemble "true" rat-bite fever caused by Spirillum minus. Allbritten, Sheely and Jeffers[1] believe the two can be differentiated clinically. A milk-born outbreak

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*Technician, Milford Memorial Hospital.

**Robert S. Long, M. D., Frankford, Del.

***Oliver A. James, M. D., Surgeon in Chief, Milford Memorial Hospital.

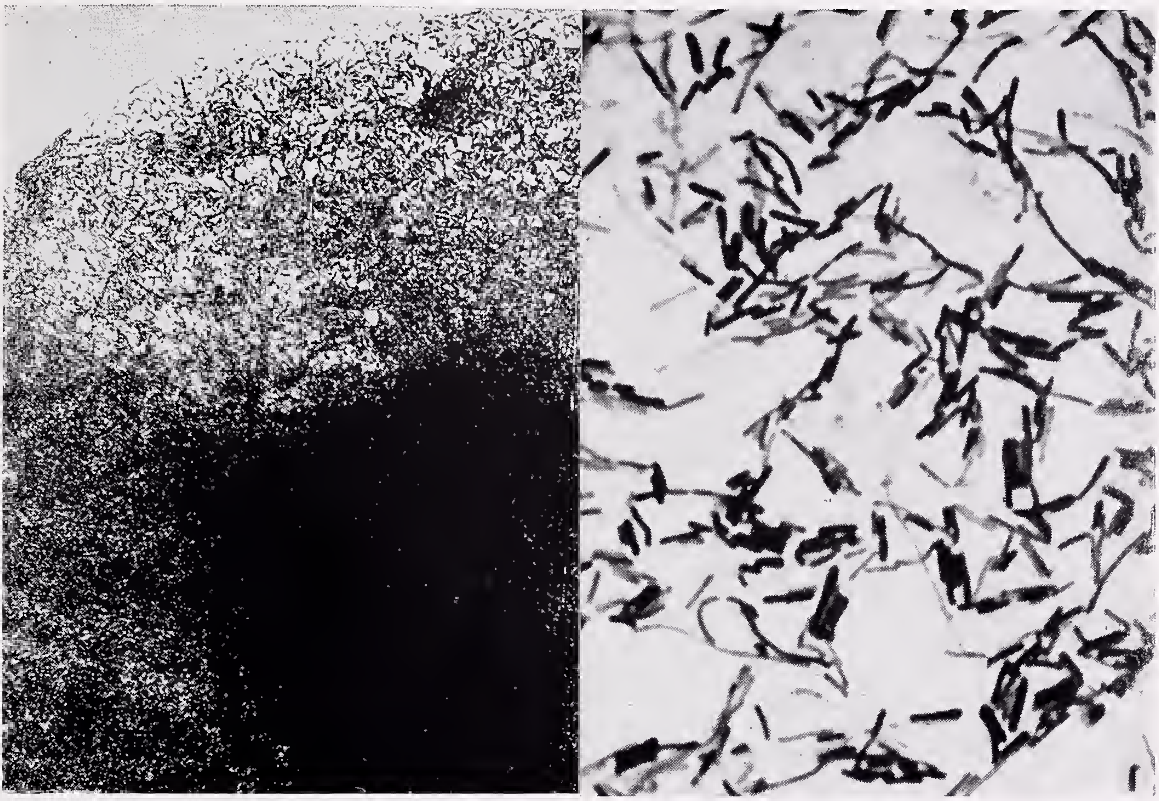

FIG. 1 FIG. 2

FIG. 1. Edge af colony of actinomyces muris-ratti. X 155
FIG. 2. Smear from colony of actinomyces muris-ratti depicting pleomorphism. X 1800

of mycotis rat-bite fever was called Haverhill fever.[3]

Arsenicalls are not effective against Actinomyces muris-ratti but results with penicillin and sulfonamides are encouraging in some cases.[5] In spirillum minus infections arsenicalls are the therapeutic agents of choice.[3] Mycotic rat-bite fever is rarely fatal. Spirillum rat-bite fever fatality varies from 2 to 10 per cent.[3]

Brown and Nunemaker[2] believe that rat-bite produces the actinomycete infection much more commonly than the spirillum infection in this country. One hundred and twenty-five (125) cases of rat-bite fever were reported in the United States from 1916 to the end of 1940. What proportion of these cases were actinomycete infection is problematical.

Summary

1. The history and findings of a patient suffering from rat-bite fever are reported.

2. The etiologic agent was identified as actinomyces muris-ratti.

3. The differential diagnosis between mycotic rat-bite fever and spirillum minus infection is stressed because of different therapy.

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CLINICOPATHOLOGIC CASE REPORT*

Joseph Elliott, M. D.,**
John W. Annand, M. D.,
and
O. J. Pollak, M. D.
Lewes, Del.

Presentation of Case (J. E.)

History: A 16 year old Negro was admitted to the Beebe Hospital on July 2, 1953, complaining of anorexia, malaise and weakness. For four days prior to admission he felt especially tired. During the last month he had worked long hours in a bake shop, had eaten very little, and had lost 15 pounds.

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*Presented at Staff Meeting, Beebe Hospital, August 8, 1953.

**Junior Intern, Physician, and Pathologist, respectively.

Physical examination: The patient was asthenic, poorly nourished and apparently depressed. His talk was continuously about dying. On admission, the only abnormalities found were a slightly inflamed throat, a rapid heart rate, depressed deep tendon reflexes and incoordination.

Laboratory data: Chest x-ray, urinalysis, complete blood count, sedimentation rate, heterophile antibody test, blood sugar, blood urea nitrogen, blood chlorides, and spinal fluid examination were done. The only remarkable finding was a WBC of 7,000, with 70 per cent lymphocytes.

Course: The patient was treated symptomatically and with various antibiotics. On the 4th of July, after little over 48 hours of hospitalization, he developed severe respiratory difficulty. He was given oxygen and stimulants. Because the Hospital's iron lung had been lent to Wilmington, transfer of the patient was planned. He expired in the ambulance and was brought back to the Beebe Hospital for autopsy.

Clinical Discussions (J. A.)

This patient, when seen on the second day of his hospital stay, gave a history of gradual onset of muscular weakness beginning with his legs and ascending. Neurologically, he had generalized weakness involving the muscles of the back, abdomen and neck. He also complained of generalized paresthesias.

Among the diagnoses of muscular dystrophy, myelitis due to malnutrition, multiple sclerosis, etc., the suspicion of poliomyelitis was outstanding. However, the course of illness was too gradual, there were no spasms, pain or fever. Only the last day did the temperature increase from 98 to 100°F. (This, Dr. A. Tormet interjected, might be due to anoxia or pneumonic process). The spinal fluid pressure was normal, as was the cell count and the protein content. These findings also ruled out Guillain-Barre syndrome of polyneuritis. Infectious neuropathies and post-infectious neuronitis, such as occur with or after diphtheria and other infectious diseases, were considered. The relative lymphocytosis in the peripheral blood alerted us for infectious mononucleosis, although the lymphocytes were of the mature type. The heterophile antibody test was negative. Closely related to polyneuritis, neuritis, neuronitis, radiculitis, neuropathies, etc., is Landry's ascending paralysis. This condition was strongly considered, until the patient developed bulbar signs with respiratory distress. At this point, poliomyelitis seemed again very likely. The patient was on his way to Wilmington with a tentative diagnosis of poliomyelitis.

Autopsy Findings (O. J. P.)

The outstanding gross post-mortem findings were hemorrhagic myocarditis and pneumonitis. The spleen was thrice the expected size, soft, with abundant scrapings and prominent follicles. All lymphadenoid tissue was prominent throughout the body. All lymphnodes were enlarged and congested. The adrenal glands were rather thin. The consistence of the parenchymatous organs was decreased. Upon inspection of the chest organs rickettsial disease was suspected, and blood was taken to the laboratory. The faint red macular rash on the volar surface of the left forearm was then linked with the visceral findings. Agglutination of Proteus OX 19 was negative; the titer of cold agglutinins in the patient's serum was 1:640. Microscopically, all gross autopsy findings were confirmed. In addition, there was severe necrotizing myelitis throughout the cord and the medulla, with severe involvement of the base of the fourth ventricle. The spinal nerves were involved and the epicardial nerves were markedly degenerated. Rickettsiae were demonstrated in large numbers in tissue sections colored with the Giemsa stain, in practically all the organs.

Pathologic Discussion (O. J. P.)

This is a case of fulminant rickettsial septicemia which manifested itself clinically by an acute ascending paralysis and which anataomically was characterized by necrotizing funicular myelitis, and by hemorrhagic myocarditis and pneumonitis.

There is the obvious question about the negative agglutination test for Proteus OX 19. One recalls negative tuberculin tests in miliary tuberculosis. Similarly, in any overwhelming infection ability to form antibodies can be inhibited.

Necrotizing myelitis occurs in nearly 10 per cent of instances of Rocky Mountain spotted fever. It is, today, responsible for the mortality rate. The course of myelitis or encephalomyaloneuritis is rapid. These patients do not respond to chemotherapy. (Our patient received chloromycetin.)

In 1859 Landry[1] described a new disease which he called "paralysie ascendante aigue." Today, we know that acute ascending paralysis is not a disease entity but can accompany a variety of overwhelming infections, among them rickettsial diseases. Landry's classical description is still valid. (Our case fits the description perfectly in all respects, in prodromal stage, onset, evolution, course, signs and symptoms, duration, and outcome.)

There are multiple factors influencing the character of Rocky Mountain spotted fever. This depends upon the resistance of the host and the virulence of rickettsiae. According to Price,[2] rickettsial virulance depends on the type of animal host and multitude of passages. The tick west of the Mississippi transmitting the disease is haemaphysalis leporis-palustris; in the east it is Dermacentor andersoni. The environmental climate, temperature and humidity, are important factors. Some rickettsial starins produce a neurotoxin and others a hemolysin. Still other starins (as in our case) apparently produce both types of toxin.

Comment: (J. E.)

Since 1944, there has been about one case of Rocky Mountain spotted fever diagnosed at the Beebe Hospital each year. All but the last two patients recovered; one patient in 1952 and one, the present case, had fulminant and fatal illnesses.

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2. Price, W. H.: Science 118: 49-51, 1953.

In tuberculosis a realistic acceptance of the illness is a prime essential if medical treatment is to be effective. The patient must not only allow medical procedures to be instituted, but must participate actively in the carrying out of the medical recommendations. Minna Field, Patients Are People, Columbia University Press, 1953.

MEDICAL SOCIETY OF DELAWARE PROCEEDINGS: 1953

The 164th Annual Session of the Medical Society of Delaware convened in the Hotel DuPont, Wilmington, on Tuesday, October 13, 1953, at 9:30 a.m. President Victor D. Washburn of Wilmington, presided.

The Sessions progressed exactly as previously printed in The Journal, with the following additions:

The afternoon session, October 13, was presided over by Vice-President Leslie M. Dobson till the return of President Washburn.

Acting Chairman Dobson: Gentlemen, I have a direct order from Dr. Washburn to see to it that this meeting gets started promptly at 2:00 P.M.

Before we proceed with the scheduled scientific session, Dr. Mayerberg would like to bring a matter to your attention.

Dr. Mayerberg: Mr. Chairman and Gentlemen:

I noticed in the paper this morning that there was some possibility of the present Commissioner of Health of the city of Wilmington leaving us, partly because, or mostly because, he has not received a satisfactory contract.

With that in mind, and knowing that the members of this Society should be interested in helping out the residents of the city of Wilmington, I introduce the following Resolution:

RESOLVED, that this Society deplores the possibility of the city of Wilmington losing the valuable services of Dr. Charles Benning;

We, the members of the Medical Society of Delaware, urge the authorities of the city of Wilmington to make every effort to retain him. We recommend a satisfactory contract for him and the immediate divorce of the Health Department from politics.

Gentlemen, I urge the passage of this resolution.

Acting Chairman Dobson: You have heard the reading of this proposed resolution. Is there any discussion?

Dr. Shands: I should like to second the resolution.

Acting Chairman Dobson: Is there any discussion?

All in favor of the resolution please say Aye. The resolution is adopted.

The Wednesday morning session concluded as follows:

President Washburn: We now take up the business of nominating and electing a president-elect. The Chair recognizes Dr. Oscar LaMotte, Sr.

Dr. LaMotte: Mr. President, I desire to offer the name of a distinguished clinician whom I have known for many years, a scholar, a teacher, and a gentleman. It gives me pleasure to propose Dr. Louis Flinn for president-elect of the Medical Society of Delaware.

President Washburn: Thank you very much, Dr. LaMotte.

We have had placed in nomination the name of our respected and good friend and member of the Society, Dr. Louis B. Flinn, as president-elect of this Society.

Does the Chair hear a second to that nomination?

(Nomination seconded from floor.)

Dr. Beatty: I move that nominations be closed.

(Motion seconded.)

President Washburn: The Chair is most reluctant to prevent nominations from the floor. With your good will for a moment—are there any other nominations to be made?

The motion is that Dr. Flinn be nominated for the office of president-elect, that the nominations close, and that the secretary cast the ballot. Was that included in your motion?

Dr. Beatty: Yes.

President Washburn: You have heard the motion. Is there any discussion?

Are you ready for the question?

(The motion was put to a vote and carried.)

President Washburn: It is so ordered. The Chair declares Dr. Louis B. Flinn elected as the president-elect. I believe it is the custom for the president-elect to approach the platform and accept the nomination. Dr. Beatty, will you see that Dr. Flinn gets up here properly?

(The president-elect was escorted to the platform.)

(Applause)

President-Elect Flinn: Dr. Washburn, Dr. Smith, Members of the Society:

I never seriously considered or thought much about being president of this, one of the oldest and most distinguished medical societies in the country. If I had thought about it at all, it was to think that some of the older members of the profession at some time or other were given this privilege and opportunity. Perhaps it is later than I think. (Laughter)

I wish to thank Dr. LaMotte for his very kind remarks in making the nomination. I have thought a little bit about the Medical Society, however, and it seems to me that this Society should take a more active part in various aspects of the medical field than it has done in the past, although its record is good.

I feel that in addition to carrying on the long traditions of the past, more active participation should be taken in many of the fields which have just been so inspiringly described by Dr. Washburn in his address. Certainly, we should do everything to improve medical care, to increase medical education. Certainly too, we should take a more active part in leadership in directing public health activities, take a more active part in coordinating the medical aspects of public relations, and indeed in certain medico-legal affairs which we have been a little hesitant about doing our share in the past.

I think you have seen from the program that such strides are already being made. Dr. Washburn has pointed the way. I know Dr. Hewitt Smith will continue.

In return for this honor and privilege you have conferred upon me today, I can oly promise you that I will do my very best to follow through.

President Washburn: I have just been reminded of something that occurred yesterday and which I violently opposed and disapproved of, and now I wish to amend it, and I do it with pleasure.

Perhaps you do not know or realize that on the program yesterday there was a speaker who appeared and insisted upon doing his part by presenting his paper over the cordial disapproval of his medical and surgical consultants. The diagnosis was made yesterday that Dr. Neubauer was suffering from appendicitis and needed an appendectomy, but possibly because of that determination that is to be found in the union of his Irish and German ancestry, he was determined to be here and do his part, which I understand he did well. I did not happen to be present. But the fact of the matter is that his determination to discharge his obligation carried him through, and he had an appendectomy, and I understand that he is doing very well today. Yesterday I disapproved because I felt that he was taking an unnecessary and undue risk and hazard, but today, now that it has been done successfully, we congratulate him upon his determination and loyalty to which he considered his obligation to our Society.

The executive secretary will please take notice that you are to send flowers to Dr. Neubauer at the Memorial Hospital as coming from the Medical Society of Delaware as a token of our interest and his devotion to duty.

There being no objection, the order will be carried out.

The meeting was concluded on Wednesday afternoon as follows:

President Washburn: Before we adjourn, it is my privilege to acknowledge and give credit to all those who have assisted us in conducting the affairs of this meeting, our 164th meeting. So I must thank our host society, the New Castle County Medical Society, for their part in making this meeting a success, being particularly grateful to the committee on arrangements of that society, the Woman's Auxiliary of the Medical Society of Delaware, the exhibitors, the Hotel DuPont management, and the Police Department. I am sure we lay very special emphasis on that one, if they remit all our fines. We are grateful to the press and to the radio authorities.

Then I would add a personal note. I don't know whether Dr. Bird is here or not, but I am grateful to him. He has been very faithful and devoted in discharging his duties, and has been of invaluable assistance in preparing this program.

The program adjourned at 5:05 P. M.

TRANSACTIONS: HOUSE OF DELEGATES OCTOBER 12, 1953

The meeting of the House of Delegates of the Medical Society of Delaware was called to order in the Colonial Room of the Hotel DuPont, Wilmington, Delaware, at 8:30 P. M. on Monday, October 12, 1953, by President Victor D. Washburn.

President Washburn: The meeting will please come to order.

We are missing a secretary. The Chair will entertain a motion to direct someone here to serve as the secretary pro tem.

Dr. Levy, will you be kind enough to serve as secretary until the secretary arrives?

If there is no objection, Dr. Levy will act as secretary pro tem. The Chair hears no objection; so ordered.

We will now have the roll call.

Roll Call: Victor D. Washburn, Hewitt W. Smith, Leslie M. Dobson, Joseph M. Messick, W. Edwin Bird, H. T. McGuire, W. C. Pritchard, J. W. Lynch, J. W. Alden, E. M. Bohan, S. G. Elbert, D. J. Preston, J. W. Barnhart, J. A. Giles, W. W. Lattomus, C. T. Lawrence, Jr., Charles Levy, M. B. Pennington, A. R. Shands, Jr., S. H. Stradley, Jr., O. N. Stern, H. G. Neese, Bruce Barnes, James Beebe, Jr., J. E. Marvil, G. M. Van Valkenberg.

President Washburn: The Chair declares a quorum present.

Minutes of the last meeting.

Acting Secretary Levy: They are printed in the December Journal.

President Washburn: The Chair will entertain a motion that the reading of the minutes of the last session be omitted in as much as they have been printed.

(Motion made, seconded and carried that the reading of the minutes of the last meeting be dispensed with.)

Report of the President

May I begin by stating that I have, as your President, spent an exceedingly busy year.

I have made official visits to the three County Medical Societies, presided at all meetings of the Councilors, attended meetings of committees where legislative matters were discussed and I have attended hearings held of committees to the Legislature on matters of particular interest to the medical profession.

I was frequently in touch with the Chairman of the Legislative Committee of this Society, Joseph S. McDaniel, Sr., who labored faithfully and diligently in our behalf during the long drawn out session of the State Legislature.

I have attended, as your representative, numerous organizational meetings of the Delaware State-wide Chest X-ray Survey, Inc.

This Survey is unique in that it is the first such survey to be conducted on a state-wide basis, financed solely by state tax funds and money contributed by a State Anti-tuberculosis Society, State Medical Society, a State Cancer Division, and by members of the printing industry who contributed to the needed printed material at cost.

The United States Public Health Service has loaned ten mobile X-ray units and provided professional advice and highly valuable and skilled guidance.

I have participated, as your representative, in the proceedings of the National Health Council held in New York City, March, 1953.

During the course of the Annual Session of the American Medical Association, held in New York City, in June of this year, I attended a meeting of the Medical Emergency Committee, a meeting of the National Advisory Committee of the Selective Service System and conferred with a field representative of the Council on Medical Education of the American Medical Association.

I participated in the proceedings, at Highland Park, Illinois, of the Fourth National Conference on Physicians and Schools, held under the auspices of the Bureau of Health Education of The American Medical Association, September 30th thru October 2nd, 1953.

At my request the councilors have this year functioned as a reference committee for all committee reports. This was done in the hope that such action might result in more efficient disposition of the business requiring the attention of this House.

Also at my request, the Councilors have considered the recommendation that certain special committees of this Society be consolidated and that some other committees be abolished.

As you are aware, the General assembly of the State of Delaware, at its last session, enacted an amendment to Title II, Delaware Code of 1953, entitled "Crimes and Criminal Procedure" by providing for reports in cases of Epilepsy.

The new section (108) provides that every physician shall report within one week to the Department of Motor Vehicles, the names, ages and addresses of all persons attended or treated as cases of epilepsy.

Said reports shall be kept confidential and used solely for determining the eligibility of any person to operate a motor vehicle on the highways of this State.

Penalties are provided for in case of failure on the part of any physician who fails to report a case of epilepsy.

It is obvious that it is the intent of this legislation to protect the public from those who, because of epilepsy, are unfitted to drive a motor vehicle on our highways.

It would appear to be equally clear that it is the duty of every physician to cooperate wholeheartedly with the State Highway Department in carrying out the intent of the amendment referred to.

In my capacity as President of this Society, on August 26, 1953, I sought and obtained, an interview with the Commissioner of Motor Vehicles, Mr. H. H. Keller.

During this interview, I pointed out that epilepsy is a disorder of many causes and almost infinite variation. Its diagnosis is based on evaluation of data obtained from the history, physical examination and laboratory studies. Treatment by anti-epileptic drugs is successful in the great majority of patients.

I pointed out that while it was our duty as physicians to assist the Highway Department in denying a driver's license to the seriously ill epileptic, it was also our duty to prevent injustice to those who were not dangerous as drivers.

I asked if an offer of cooperation on the part of the Medical Society of Delaware with the office of the Motor Vehicle Commissioner in this matter would be acceptable.

I was assured that such an offer would indeed be welcomed and receive every consideration.

Accordingly, I now propose that the Council recommend that the House of Delegates tender the support of this Society to the Motor Vehicle Commissioner of the State Highway Department and respectfully suggest that the commissioner appoint a Medical Advisory Committee from among a list of physicians to be submitted by the Medical Society of Delaware, the list to include the names of specialists in the fields of neuro-surgery, internal medicine and psychiatry. The committee, so appointed, to serve only when requested by the Commissioner, and without compensation.

I consider that I am personally indebted, as is our membership, to those officers and committee members who have worked zealously to forward the interests of our Society. I include among these Doctor E. R. Mayerberg, and those members who took time to appear on more than one occasion before committees of the Legislature.

Respectfully submitted,

Victor D. Washburn, *President*

President Washburn: That is my report, gentlemen. What will you do with it?

(Motion made and seconded that the report of the President be accepted.)

President Washburn: You have heard the motion. Is there any discussion, question or comment?

Is it to be understood that if you vote to accept my report, you approve of the steps which I have taken in this matter of epilepsy to be reported to the Motor Vehicle Commissioner? Does that recommendation meet with the approval of the membership?

Dr. Giles: Dr. Washburn, has this committee already been appointed?

President Washburn: Oh, no. This is a recommendation on the part of the President to the House of a procedure which I believe to be in our interest. In other words, I believe this puts it on a sound ground. I have been approached by a number of members of the Society who felt that they were reluctant to release the names of patients, and there was a good deal of uncertainty as to just what action they, as doctors, really should take. Under those circumstances, I have felt that this protected them; this put it in the hands of the Society, if it is agreed that this is a proper step; that the Commissioner has in writing agreed to accept the advice of a committee, either elected or appointed, as you like, to serve when there is uncertainty or controversy.

Dr. Pritchard: Wouldn't it be proper that a motion be made and passed? Isn't that about the only way it can be managed?

President Washburn: The motion was to accept the report, and then I asked were we to consider this as a motion authorizing this?

Dr. H. W. Smith: Dr. Washburn, I made the motion and I think that motion should be amended so that it states that the report be accepted and approved, and the recommendation concurred in.

President Washburn: Are there any other questions?

Dr. Barnhart: Who is to decide whether these reports are controversial or not so that they can be given to the Council?

President Washburn: It is my understanding that the doctor who refers the case will be given a form on which he will answer the questions, and he will be asked to make his recommendation. If there is any objection on the part of the Motor Vehicle Department, he would be the one to have the name deleted and the information sent to their committee for their recommendation.

Are there any other questions?

Are you ready for the question?

(The motion, as amended, was put to a vote and carried.)

President Washburn: The next order of business is the report of the Treasurer.

Report of the Treasurer

General Fund

Receipts

Cash balance January 1, 1952		$ 9,613.24
Dues		
State Society	6,611.00	
Medical Journal	901.50	7,512.50
AMA Assessment		7,350.00
Annual Session		
Dinner Subscriptions	756.00	
Rentals, Exhibits	640.00	1,396.00
Miscellaneous		
Dividends	105.00	
AMA—1% reimbursement	68.50	
AMA — Refund	25.00	
Employees' withholding	1,135.00	
Miscellaneous	62.70	1,396.20
Total Receipts		$17,654.70

Disbursements

Salaries		
Ex. Sec.	$ 3,000.00	
Steno.	552.48	
F.I.C.A.—Society's share	27.00	$ 3,579.48
Office		
Printing, stationery, postage, T & T	$ 605.30	
Magazines, dues & subscriptions	40.00	
Ex. Sec. Expenses	268.02	$ 913.32
Operations		
AMA Assessments	$ 7,225.00	
Subscriptions to State Jrnl.	895.50	
Auditing	175.00	
Insurance	25.00	
Safety deposit box	4.80	
Refunds	25.00	
Accounts payable	4.05	
Overpayment payroll taxes	3.00	
Employees' withholding	1,395.00	
Miscellaneous	36.89	$ 9,789.24
Travel		
AMA Conventions	$ 214.53	
AMA Conferences	101.49	$ 316.02
Annual Session		
Food & Entertainment	$ 945.70	
Stenotypist	288.70	
Program & Tickets	184.00	
Rental, auditorium	131.04	
Badges	70.29	
Projector service	0.00	$ 1,619.73
Total Disbursements		$16,217.79
Balances Dec. 31, 1952		
General Fund	$11,050.15	
W.S.F.S. (Defense Fund)	4,269.28	
Investment		
7 shares Farmers Bank of Del.	2,800.00	
U. S. War Savings Bonds (due May, 1955)	2,100.00	$20,219.43
Accounts Receivable		
Del. State Med. Journal	$ 22.00	
Refund claimed	3.00	$ 25.00
Total Assets		$20,244.43
Liabilities		
Due AMA	$ 125.00	
Due Employee	1.00	$ 126.00
Net Assets 12-31-52		$20,118.43

Respectfully submitted,
Jos. M. Messick, *Treasurer*.

President Washburn: You have heard the reading of the Treasurer's report. Am I correct in saying that the auditors have audited it?

Dr. Messick: The auditors, Haggerty and Haggerty, have audited the reports. I have the figures, if you are interested, for the first nine months of this year.

President Washburn: What is your pleasure? You have heard the report of the Treasurer as to the year ending December 31, 1952, which has been audited. The Chair will entertain a motion to receive the report.

(Motion made, seconded and carried that the report of the Treasurer be accepted.)

President Wasburn: Would the House like to hear Dr. Messick's report of our cash position at the moment?

The Chair hears no demand.

Dr. Messick: Is the House of Delegates interested in the investments that I was directed to make at the last session?

President Washburn: Please report.

Dr. Messick: These investments have very recently been made in conjunction with one of the officers of the Equitable Security Trust Company. I didn't do much about it for the first several months because I thought maybe prices would go down, but they didn't.

After consulting with them, we decided that in the defense fund we could get along with a much lower balance than we have been getting along with in the last few years, about a $9,000 balance, ending at December 31st with $11,000-plus. We elected to invest about $11,000.

The officer of the Equitable Security insisted that we invest approximately half in government bonds, and in Series J bonds $5,040 were invested. We also decided together to invest in local securities: 25 shares of Equitable Security, 15 shares of

Hercules preferred, 20 shares of Continental American Life, and 15 shares of DuPont preferred; total investment of $11,061.45.

President Washburn: You have heard the report of the Treasurer with regard to the investment of idle money. What is your pleasure?

(Motion made and seconded that the report be accepted.)

President Washburn: Are there any remarks?

(The motion was put to a vote and carried.)

President Washburn: Report of the Executive Secretary.

Report of the Executive Secretary

Your Executive Secretary reports that the volume of work for the year just passed shows a moderate increase over the previous year. The correspondence and other work is on a current basis.

We, together with the officers, made an official visit to the Kent Society in the Spring, which meeting was very enjoyable, and we hope we imparted some information of value. Our scheduled visit to the Sussex Society had to be cancelled because of the intense fog up here. However, President Washburn, who had been in Dover that day, was able to attend the Sussex meeting.

In addition we attended an AMA Conference on Legislation in New York in December; the Federation of State Boards in Chicago in February; and the Medical Societies Executives Conference in New York in June, at which time I was one of six who were honored with a citation for 25 or more years of service to the medical profession.

The membership of the Society is as follows:

	New Castle	Kent	Sussex	Total
September, 1951	261	24	48	333
New Members	20	1	0	21
	281	25	48	354
Losses				
Deaths	1	0	0	1
Transfers	5	0	0	5
September, 1953	275	25	48	348

A gain of 15, as compared with 7 for 1952, and 13 for 1951.

Our exhibits this year are the same number as in 1951, but the revenue from these, $1,355.00, is the largest in the history of the Society.

We have assisted in preparing a program for this Session which we hope you will like. Stress has been placed on Medical Legislation and Medical Economics, both of which are timely at this time.

In conclusion, we wish to thank all of the officers and members of the Society and of the Auxiliary with whom we have had official businss during the year. Their cooperation has been splendid and we greatly acknowledge it.

Respectfully submitted,
W. Edwin Bird, *Executive Secretary*

President Washburn: You have heard the report of the Executive Secretary. What is your pleasure?

(Motion made, seconded and carried that the report be accepted.)

President Washburn: The next order of business is the report of the Councilors.

Report of the Councilors

Meeting on September 28, 1953

Councilors prsent were: Thomas McGuire, L. C. McGee, Joseph Messick, J. C. Pierson and V. D. Washburn. Also present were Hewitt Smith, President elect; Roger Murray, Edgar Miller, G. A. Beatty and W. E. Bird.

Dr. Roger Murray, Chairman of the Military Affairs Committee of this Society, submitted in writing a report representing recommendations of his committee. It has been agreed that this report will be presented to the House of Delegates.

The chairman of the Special Committee on Tuberculosis, Dr. Beatty, presented a report of his committee. It was agreed that this report should be presented to the House of Delegates. On motion duly seconded it was voted to recommend to the House of Delegates that an appropriation of $1,000 be made to the Dlaware State-wide Chest X-ray Survey, Inc. and the sum of $1,000 for the support of the Delaware Academy of Medicine.

On motion, duly made and seconded, it was voted to recommend to the House of Delegates that the:

(a) Committee on Mental Health be combined with that on Feeblemindedness,
(b) Committee on Military and Veterans Affairs be combined with that on National Emergency Medical Service.
(c) Committee on Care of Colored People be abolished,
(d) Committee on Medical Service & Public Relations be combined with that on Medical Economics.
(e) Committee on Health & Sanitation be abolished,
(f) Committee on Industrial Health be abolished, and
(g) that the Committee on Social Hygiene be abolished.

On motion, duly made and seconded, it was voted to endorse the recommendation of the President which he proposes to make to the House of Delegates offering to the Commissioner of Motor Vehicles of the State Highway Department the cooperation and assistance of the Medical Society of Delaware in the matter of administering the amendment to Title II Delaware Code of 1953 entitled "Crimes and Criminal Procedure" which provided that members of the medical profession shall report to the State Highway Department all cases of epilepsy coming to their attention.

Respectfully submitted,
V. D. Washburn, *President*

President Washburn: In as much as the report makes a number of recommendations which may or may not meet with the approval of the House, is it the pleasure that you move to receive the report and take up the recommendations seriatim?

(It was so moved and seconded.)

President Washburn: It has been regularly moved that we accept the report and take up the recommendations seriatim. (Motion carried.)

The first recommendation is that $1,000 be appropriated for the Delaware State-wide Chest X-ray Survey. That recommendation is based on the fact that when we started out with this report, we were under an administration that was financing these surveys, and then the policy changed, and the administration changed, and no funds were forthcoming, and the legislature appropriated $46,000. The Delaware Anti-Tuberculosis Association has appropriated, I think, $25,000; the Delaware Division of the American Cancer Society has appropriated $1,000, and the proposal is that this Society appropriate $1,000. The budget which was adopted by the Survey comes to $81,000.

What is your pleasure?

Dr. Shands: Mr. President, may I ask whether the County Society has appropriated anything for this survey?

President Washburn: This is the only request that has been made. There has been no request to any of the component societies.

Dr. Shands: I move that we appropriate $1,000 for this survey.

(Motion seconded.)

President Washburn: It has been regularly moved aand seconded that the Society appropriate $1,000 to this survey. Are there any questions or is there any discussion?

Dr. Barnes: May I ask what the cost of the survey will be?

President Washburn: I am not sure whether I can tell you. The budget, of course, represents $81,000. In other words, we must transact business within our resources, and the known resources now are $76,000—$46,000 appropriated by the state, $30,000 by the Anti-Tuberculosis Society, I see here, and the Delaware Division of the American Cancer Society is $1,000. That means that $77,000 has been appropriated.

We hope that there will be an appropriation here, and we hope also to receive money from the Delaware Heart Association. They have been asked, and we have reason to think that they look favorably upon that. So that the known funds in hand are $77,000 and the budget is $81,000. That is the best I can do, Dr. Barnes.

Dr. Barnhart: Doctors pay taxes, and doctors contribute to the Cancer Society and the T.B. Society, and a lot of the physicians are working on this thing. It looks to me as though we shouldn't be picked out to put in an extra donation with all the rest that the physicians are doing for this program.

Dr. Messick: I think, as an organized body of the state Society, that this is good public relations. I think the survey will eventually get the money from some place, whether we donate or not. I think this makes for good public relations, and that is the chief merit in making this contribution.

Dr. Lawrence: Dr. Messick has expressed my opinion.

President Washburn: Are there any other remarks or questions?

Dr. Bohan: I think we all know Joe Pyne. The other night on the radio he was asked a question about some of the help that the Medical Society was giving to this program, and whoever called him gave him an adverse report. He said, "Shame on the doctors." So I suggest that we perhaps get a little piece in the newspaper tomorrow about our contributions, or call Joe Pyne.

President Washburn: Are you ready for the question?

(The motion was put to a vote and carried.)

President Washburn: It is so ordered.

The next item is the recommendation to appropriate $1,000 for the support of the Delaware Academy of Medicine. Is there a letter that we can read?

Acting Secretary Levy: (Reading) "The Delaware Academy of Medicine is serving a magnificent purpose, in spite of the fact that for years it has been existing from hand to mouth largely from the generosity of lay friends. It is a monument to the physicians of Delaware, regardless of where they live. Therefore, it is my opinion, as the representative of your medical society, that it would be wise for the Society to make as liberal a contribution to the Academy as their budget will permit. The pharmacists, the Dental Society of Delaware, the New Castle Medical Society, are making annual contributions. For the benefit of the general public, the Academy sponsored a series of three lectures entitled 'You Are Your Health.' Response to the series was so favorable that it was decided to sponsor another expanded series of eight lectures during the coming years."

Signed by W. O. LaMotte, Representative to Delaware Academy of Medicine.

President Washburn: You have heard the recommendation; you have heard the report of the delegate. What is your pleasure? It's a lot of money, but we need money out there at the Academy, I know that.

Do you care to speak before a motion is put, Dr. Messick, to express your opinion as the Treasurer, the guardian of the funds?

Dr. Messick: I am very much in favor of the Academy of Medicine. I pray that this has nothing to do with this report, but I do think that after we have the Academy the doctors should either have the Academy or drop it, not expect the lay people to keep on carrying it.

However, I am opposed personally to contributing this much at this time. I would rather see us go half way. Furthermore, at the time we made these investments, I personally didn't know that these contributions would come up, and I think that perhaps we will have to dip into our defense fund just a little bit. I can't say that that is positively so. We cut our reserve down to approximately $2,000, and because we collect our dues in the beginning of the year, most of them, we could go along through the rest of the year, starting off with approximately $2,000, according to our budget.

Now, if we are going to contribute $1,000 to the Survey and another $1,000 to the Academy of Medicine, the treasurer next year is going to be operating on a slim budget to start off with.

Personally, I would rather see us contribute a smaller amount this year, and next year, if we can, go up to $1,000. But that is my personal opinion.

President Washburn: Thank you very much, Doctor.

You have heard the recommendation; you have heard the report from Dr. LaMotte; you have heard the opinion expressed by Dr. Messick. What is your pleasure?

Dr. McGuire: I was the opposer of the motion in the Council, and I should like to defend it. I find myself disagreeably in opposition to my good friend, Joe Messick. I agree with the general principle and think that we would be doing our duty if we did cut it in two. However, I do think when I look at the membership rolls compared to the number of men in the state who are eligible in the medical profession to be members, at a very nominal stipend, that I am a little shameful of our percentage. It is not high enough, particularly when that building carries the connotation Delaware Academy of Medicine. It doesn't say scientists, chemists, or PhD's.

Another thing: When it comes to the appropriation for the running of the Academy, the contribution of the physicians compared to other peoples is lamentably low, and it is a matter of pride with me that this contribution should be made.

If it is a matter of necessity that the appropriation be of at least $500, as the Treasurer indicated, I so propose it in the form of a motion now.

President Washburn: Does the Chair hear a second?

(The motion was seconded.)

President Washburn: It has been regularly moved and seconded that this Society appropriate the sum of $500 to the support of the Delaware Academy of Medicine. Are there remarks or comments?

Dr. Shands: I have been on the Executive

Committee of the Academy this year and listened to the finances discussed. I think that this Society ought to do more than $500. I think that the three county societies and the state society ought to subsidize that whole project. Our Treasurer thinks that $500 is all we can give at this time. All right, but I think that there ought to be something in the minutes to the effect that we are on record as approving what is being done there and being perfectly willing to consider another appeal for funds later on during the year, if they are needed.

President Washburn: Does the Chair understand that you would like to amend the motion to appropriate $500?

Dr. Shands: I would like to amend the $500 motion with this additional information, that we approve, in principle, what the Academy is doing, and are willing to consider another request for funds later in the year if they are needed.

President Washburn: Does the Chair hear a second to the amendment?

(The amendment was seconded.

President Washburn: We are now voting on the amendment, which is that we add to the original motion, and approve in principle, the work that is being carried on by the Academy and would endeavor to consider favorably further appeals, if found necessary. You have heard the motion to amend. Is there any further discussion?

Dr. Neese: Shall we set an amount on that now?

President Washburn: My judgment is that it ought to be left open. That is a personal opinion. Are you ready for the question on the amendment?

(The amendment was put to a vote and carried.)

President Washburn: So ordered. The next vote on the motion as amended. Are you ready for the question to vote on the motion as amended?

(The motion, as amended, was put to a vote and carried.)

President Washburn: So ordered. The next recommendation.

Acting Secretary Levy: We have the recommendation that certain committees be combined.

President Washburn: I hope that you all will listen carefully. If anyone disagrees with what we in the Council thought would be desirable, please say so.

Acting Secretary Levy: To combine the Committee on Mental Health with that on Feeblemindedness.

President Washburn: What do you wish to do with the recommendation?

(Motion made and seconded to approve the recommendation.)

President Washburn: Is there any discussion?

(The motion was put to a vote and carried.)

President Washburn: Next recommendation.

Acting Secretary Levy: That the Committee on Military and Veterans Affairs be combined with that on National Emergency Medical Service.

President Washburn: What is your wish? Dr. Murray, you are interested in this particularly.

Dr. Murray: Mr. Chairman, my own feeling is that this Committee on Military and Veterans Affairs should become very active and very important. If that matter is handled in the manner in which it should be handled, I think it would be enough for one committee without considering any other thing at all.

President Washburn: The Chair will entertain a motion to disapprove.

(Motion made that the recommendation for combining the two committees be approved. Motion seconded.)

President Washburn: It has been regularly moved and seconded that the recommendation that the Committee on Military Affairs be combined with the National Emergency Medical Service Committee be approved. Are there any comments?

Dr. Alden: In support of what Dr. Murray has said, his report, which you will hear later, will bring some rather important things to the attention of the House of Delegates and it will be obvious then that there will be a great deal of work involved for a Veterans and Military Affairs Committee. I dont know what is to be done by the National Emergency Medical Service Committee; I dont know how much work they will actually have.

President Washburn: I am quite familiar with it. I have been a member on it.

Dr. Alden: But this other committee is going to have their hands full with the proposed work to be done in the next year.

Dr. Shands: Mr. Chairman, could we delay the action on this motion until we heard Dr. Murrays report?

President Washburn: If there is no objection, we will lay this recommendation on the table.

Acting Secretary Levy: Another combination, the Committee on Medical Services and Public Relations with the Committee on Medical Economics.

President Washburn: What is your desire on that matter?

(Motion made and seconded that the recommendation be adopted. Motion carried.)

President Washburn: Next recommendation.

Acting Secretary Levy: There is a group of committees that the Council thought should be abolished. First is the Committee on Care of Colored People.

Member: Do you know why that was recommended, why the committee is not considered necessary?

Member: I don't know why there should be such a committee in the first place.

President Washburn: Dr. Elbert, would you care to speak to that?

Dr. Elbert: I agree that I don't see why it was instituted in the first place. I think that the care of colored people is primarily the care of all people as far as hospitalization, as far as general care, as far as housing, from a medical standpoint, and I dont see any particular purpose for that committee.

President Washburn: Would you care to make a motion? What is the pleasure of the House?

(Motion made and seconded that the recommendation be adopted. Motion carried.)

President Washburn: Next.

Acting Secretary Levy: That the Committee on Health and Sanitation be abolished.

President Washburn: What will you do with it?

(Motion made that the recommendation be adopted.)

Member: What does this committee do now? Does it serve any function?

President Washburn: I can only ask those who have served on the committee whether they feel that it has served a useful purpose, speaking personally, as one who has served on it. The members are Dr. Beatty, Lawrence Chipman, Bruce Barnes, and Jerry Niles. If you folks feel that the committee should be continued, then let it be said. Dr. Barnes, I see you as a member. Do you feel that there has been demand on you for service?

Dr. Barnes: No sir, I don't.

President Washburn: Remember, any or all of these committees could be re-established once the need is clear. I have had the feeling that we, as a little Society, have had about 27 or 28 committees, and so many times they have simply said that they have had no meeting.

The motion was to concur. Is there a second?

(The motion was seconded.)

President Washburn: It has been regularly moved and seconded that we abolish the Committee on Health and Sanitation. Is there any discussion?

(The motion was put to a vote and carried.)

Acting Secretary Levy: That the Committee on Industrial Health be abolished.

President Washburn: I discussed the matter with Drs. McGee and German, and they were of the opinion that it would be a proper thing to abolish it.

(Motion made and seconded that the recommendation be adopted. Motion carried.)

Acting Secretary Levy: To abolish the Committee on Social Hygiene.

President Washburn: What will you do with that one?

(Motion made and seconded that the recommendation be concurred in. Motion carried.)

President Washburn: Now we come to reports of Standing Committees. The Committee on Medical Education; Dr. Shands.

Report of Committee on Medical Education

Dr. Shands: We have never had a meeting of the committee since I have been the senior officer. I have discussed for the last year with Dr. Reese over at the University of Delaware what might be done through our university for medical education. I think he and Dr. Perkins are perfectly willing to have something through the university if we can tell them what we would like them to have. But we have never gotten together on a plan, so the committee has nothing to report at this time.

President Washburn: The Committee on Publication.

Report of Committee on Publication

Report of the Editor

We are nearing the end of Volume 25 of the New Series. The amount of material published is about equal to that of previous volumes. Through the excellent cooperation of the hospitals and other contributors, together with the papers from our annual session and papers from the meetings at the Delaware Academy of Medicine we have on hand at present a surplus of material — a healthy condition which we hope will continue. The value of the material contributed by the physicians in Delaware is definitely improving — another healthy condition which we hope will continue. The Journal receives requests for reprints from all over the United States and several foreign countries.

The Star Publishing Company, who print the Journal, deserve a very kind word for their continued courtesies and efficiency, and to them we again give our thanks.

To all our officers and members, whose continued cooperation sustains us, we offer our grateful thanks once more.

Respectfully submitted,
W. Edwin Bird, *Editor*

Report of The Managing Editor

August 1, 1952 to August 1, 1953

A. Checking Account

Checking Account, Wilmington Trust Co., August 1, 1952		$ 1,676.41
Receipts		
Advertisements	$ 8,901.08	
Bonus on Ads, AMA	404.86	
Subscriptions		
Medical Society Members	922.50	
Others	116.00	
Single Copy Sales	78.45	
Halftones	68.57	
Interest on War Bonds (Purchased 12-10-42, $3,502.38)	87.50	
Royalties	.21	
Total Receipts	$10,579.17	
Disbursements		
Printing and Mailing Journal	$ 6,803.17	
Editor's Salary	2,400.00	
Stenographer's Salary	480.00	
Stationery & Supplies	114.00	
Notary Fees	.50	
Postage	25.74	
Telephone & Telegraph	1.82	
Bound Volumes	18.00	
Copyrighting Journal	48.00	
Bonding Stenographer	16.59	
Social Security	27.00	
Printing Roster	8.50	
Electro	14.16	
Total Disbursements	$ 9,957.48	
Surplus		621.69
Balance in Checking Account, August 1, 1953		$ 2,298.10

B. Savings Account

Savings Account, Wilmington Trust Co., August 1, 1952	$ 1,649.27	
Interest on Savings Account	15.00	
Balance in Savings Account, Wilmington Trust Co., August 1, 1953	1,664.27	
Savings Account, Wilmington Savings Fund Society, August 1, 1952	3,143.61	
Interest on Savings Account	78.58	
Balance, Wilmington Savings Fund Society, August 1, 1953	3,222.19	
Balance in Savings Accounts, August 1, 1953		$ 4,886.46

C. War Bonds

U. S. War Bonds, Purchased December 10, 1942	$ 3,502.38
U. S. War Bonds, Balance, August 1, 1953	$ 3,502.38

Summary

Checking Account Balance, August 1, 1953	$ 2,298.10
Savings Accounts Balance, August 1, 1953	4,886.46
U. S. War Bonds	3,502.38
Grand Total (Accounts A, B, C)	$10,686.94

Respectfully submitted,
M. A. Tarumianz, *Managing Editor*

DR. GILES: Dr. Washburn, is this entirely separate from Dr. Messick's?

PRESIDENT WASHBURN: The answer is yes.

DR. GILES: I am all in favor of this $1,000, then.

DR. SHANDS: I make a motion that $500 of this fund be appropriated.

DR. MCGUIRE: I second that motion, because a great deal of that material has to be obtained from the library, and the Journal is not contributing anything toward the subscriptions that come to the Academy. I just remarked to Dr. Shands that they seem to be the wealthiest part of this Society.

PRESIDENT WASHBURN: You have heard the motion, which is that we appropriate $500 of this hard-earned money of Dr. Bird, who has been our editor for 35 years or more.

DR. BIRD: Thirty-eight years.

PRESIDENT WASHBURN: Is there any discussion?

(The motion was put to a vote and carried.)

PRESIDENT WASHBURN: The Chair will entertain a motion to receive the report of the Committee on Publication.

(Motion made and seconded that the report be received with approval. Motion carried.-

PRESIDENT WASHBURN: The next committee is the Committee on Public Laws.

Report of Committee on Public Laws

Due to the fact that the Delaware Legislature met in Dover for several months this year this Committee, necessarily, became very active in promoting a few new bills in behalf of the Medical Society of Delaware, as well as exerting every effort in preventing several undesirable bills sponsored by other professions and cults from becoming laws.

We were successful in having passed with no opposition in either Senate or House an Act Amending Chapters 11, 17 and 33, Title 24, Delaware Code of 1953, authorizing the Medical Council of Delaware, the Delaware State Board of Dental Examiners and the State Board of Veterinary Examiners to provide for temporary admission to practice medicine, dentistry and veterinary medicine during a possible emergency period. During the Korean War the Attorney General of this State has declared it as an emergency and the Medical Council has been able to place several physicians and surgeons in places where they were badly needed.

The first Optometrist Bill placed before the Legislature was rather vague in giving certain rights to optometrists. A delegation of opthalmologists appeared before the Caucus Committee of the Legislature to present their arguments. The delegation consisted of W. O. LaMotte Sr., Norman Cutler, W. O. LaMotte Jr., Gerald Poole, Gerald Lessy and E. R. Mayerberg. It was, therefore, advised by this Committee that representatives of the ophthalmologists and optometrists get together at a special meeting so the two bodies could try to settle their differences amicably and both professions would be satisfied. A corrected bill was then offered in the House but was withdrawn by the optometrists.

The chiropractors presented a Bill, HB 400, in the House which, if passed, would allow a chiropractor to testify in a professional capacity before the Industrial Accident Board. A delegation from the Medical Society of Delaware, namely, Drs. James Beebe Jr., Harold Geyer, James Homan, I. J. MacCollum, Daniel Preston and J. S. McDaniel Sr., was given a hearing before both the minority and majority groups of the House. The arguments against this bill by each doctor were so convincing that it seemed certain the bill would be defeated. Facts concerning chiropractic were distributed to every member of the House and Senate in pamphlet form. However, the Bill was passed in the House by a surprising vote of 20 to 4, due to several members of the House who had been won over by the cult. The Committee then turned its efforts toward the members of the Senate. A delegation, namely, Drs. Daniel Preston, I. J. MacCollum and J. S. McDaniel Sr., was given a hearing before the minority and majority groups of the Senate. There is no doubt but that the arguments brought forth by Dr. MacCollum and Dr. Preston on the subject of chiropractors had a decided effect on the Senators. Dr. Preston was excellent in describing what a menace a chiropractor could be if he were allowed to testify concerning an injured man who had complications of diabetes. His testimony certainly convinced the Senators that chiropractors were not qualified. Dr. MacCollum, a member of the Industrial Accident Board, also convinced the Senators that testimony before his Board would not be trustworthy. The Bill was never brought to a vote in the Senate and, therefore, died a "good death".

The Board of Medical Examiners had an unusual number of applicants for licensure in the state of Delaware. Twenty medical doctors and one osteopath took the examinations given in July and all were recommended to the Medical Council for licensing. Nine medical doctors were accepted through reciprocity, two were given Temporary Emergency License, and two osteopaths were accepted through reciprocity.

The Medical Council met with the Board of Examiners. It was their unpleasant duty to give a hearing to Foster M. Brown, M. D. of Wilmington, and consider whether his license to practice medicine and surgery in Delaware should be revoked. Dr. Brown was convicted before a Wilmington Court of making false statements, therefore violating the provisions of Title 24, Chapter 17, of the Delaware Code of 1953. Louis L. Redding, Dr. Brown's attorney, appeared with him. Judge Richards, President of the Medical Council, presided at the hearing. After hearing testimony of Dr. Brown and Mr. Redding, Council was assured that the false statements made were not made consciously or wilfully but rather the result of keeping inadequate records in his office and carelessness in not consulting the records which were available. The Medical Council came to the decision that, in view of the above cited evidence, the license of Foster M. Brown, M. D., be not revoked on account of the complaint made to them.

Respectfully submitted,
JOS. S. MCDANIEL, *Chairman*

DR. MCDANIEL: I should like to make this addendum. I feel justified in explaining to the delegates here the difficulties of the Committee on Public Laws. I don't think the members of the Society take this committee seriously enough. I think there is too much responsibility put on the committee alone. I have had fine cooperation from all of the members of the committee and Dr. Washburn, our president, but I have called on several physicians on the outside to see their representatives to try to kill a bill or help us in something, and they say, "That is not our duty; that is the duty of the Committee on Public Laws."

Well, it is not. It is the duty of every physician who could have some weight with a representative or senator. Nobody knows what difficulty there is in getting a bill killed or getting one through. They are not passed on their merit; the bills are not passed on their merit in the legislature. They are passed for two or three reasons: one, because the other professions are organized and they spend their money and half their time in the legislature, so that by the time we get to them we have difficulty in persuading the members of the legislature that we are right.

Nobody knows, unless you go through it, what politics are played in that body. Fortunately, I have had one or two pretty good friends in the Senate and one or two good friends in the House of Representatives, but it didn't mean much to us when we thought we had the bill licked and they licked us 20 to 4.

We are not going to have any trouble this year because we don't have any legislature, but what I would like to say is that this Medical Society should become more organized for the next legislature in some way or other, and be on the job. If they don't, there are going to be some vicious bill passed.

President Washburn: Thank you very much, and I hope in receiving this report that someone will say a kind word for the faithful and devoted service of this committee.

The Chair recognizes Dr. Mayerberg.

Dr. Mayerberg: I am not a delegate and therefore I don't have the privilege of the floor.

I think it is difficult to appreciate the great work Dr. McDaniel has done before the House. His magnificent report doesn't begin to tell the story. That man, McDaniel, if he were in military service would get a decoration for service far beyond his duty, and I would like to see, after this report is adopted, the House of Delegates give him a rising vote of thanks.

Mr. Chairman, before that I would like to say this. I was on that committee and I know how hard it is to get anything through that legislature. The optometry bill came up and some of the doctors undertook to analyze and evaluate that bill, and then we promptly went down to the legislature and opposed it. Our interpretation of that bill was entirely wrong. Every single objection that we had was in the existing law and had been in effect for years, and we went down there and made monkeys out of ourselves. Fortunately, Joe got them to ask for a consultation between the two groups and we met, and you were present, and we had an attorney present. That is the kind of thing that we should always do.

If there is ever a bill to be analyzed, evaluated or interpreted, it should be done with legal counsel. We are not lawyers. We may think we know a lot about it but we don't.

I make this recommendation, that hereafter Joe McDaniel be given the right to employ an attorney. We happened to have had a very fine one this year, Percy Green, and I would like to see him go along with us. I think Joe should be given the privilege of employing him when he needs him. He may go a whole session without having to have him but I think it is important that we have legal counsel available. Goodness knows, his job is hard enough; he ought to have all the help he can get.

I want to say this in defense of my Public Relations Committee. Those two committees worked hand in hand this year. A lot of men went down to the legislature to appear with Dr. McDaniel on both of those bills, and that is most unusual.

President Washburn: And some went more than once. Thank you very much, Doctor. Does the Chair hear a motion to accept the report with thanks and with a rising vote?

(Motion made, seconded and carried that the report of the Committee on Public Laws be accepted with a rising vote of thanks. Delegates rise and applaud.)

President Washburn: That's how we feel, Doctor. Thank you very, very much.

The Committee on Budget; Dr. Messick.

Report of The Budget Committee For 1954

Receipts	**1954**	
Dues	$ 7,800.00	
Exhibits) Annual	1,200.00	
Dinner Subsc.) Session	800.00	
Refunds	100.00	
Dividends	105.00	
Interest	95.00	
Total Receipts		$10,100.00
Disbursements		
Salaries		
Executive Secretary	$ 3,600.00	
Stenographer	600.00	
Taxes, Social Security	54.00	
	$ 4,254.00	
Office		
Printing, Stat., Postage	$ 350.00	
T. & T.	50.00	
Magazine	50.00	
Rental	300.00	
Furniture	200.00	
Miscellaneous	150.00	
	$ 1,100.00	
Operations		
Journal Subs.	$ 960.00	
Committees	506.00	
Auditing	175.00	
Middle Atlantic States Conf.	50.00	
Ins., Bonds, Misc.	4.80	
Safety Depos. Box. Misc.	200.00	
	$ 1,896.00	
Travel		
A. M. A. Conventions	$ 400.00	
A. M. A. Conferences	250.00	
Other (local)	100.00	
	$ 750.00	
Annual Session		
Luncheon, Dinner Receipts	$ 1,000.00	
Stenotypist	350.00	
Program & tickets	250.00	
Rental	300.00	
Badges	100.00	
Proj. serv. etc.	100.00	
Total Disbursements		$10,100.00

Respectfully submitted,
Joseph M. Messick, *Chairman*

President Washburn: You have heard the report on the Budget Committee. What will you do with it?

(Motion made and seconded that the report be accepted. Motion carried.)

President Washburn: Next is the report of the Woman's Auxiliary of the Medical Society of Delaware. Dr. Levy will you read that please?

Report of the Woman's Auxiliary

Delaware is 100% organized—we have three county auxiliaries. Our aims this year are:—to promote closer relationship between county auxiliaries, to increase membership, and to stimulate greater interest and enthusiasm in all our work. We have accomplished this.

The Organization Committee has sent invitations to all prospective members, stressing the privilege of membership, and the services which physicians' wives can give to their communities, as well as, to the Medical Society. Our membership has increased to 232, an increase of 24 members.

Programs have been varied. Our State officers and committee chairmen have presented plans and suggestions, received from the National Auxiliary. We have had speakers from Welfare Organizations in Delaware, Civil Defense, Red Cross, Visiting Nurse Association, and voluntary health insurance plans. We have enjoyed a talk on flower arrangements, and have had a style show.

The Public Relations Committee has been very active and successful. For the first time, our three counties have each had a public relations chairman, which has given a more connected, and much more pleasant working basis. Two new projects have been added—a booth at the State Fair, stressing nurse recruitment; and participation in the State-wide Chest X-ray Survey. Our members have been encouraged to participate in all community activities. We feel that we are well represented in all activities throughout the State, with many auxiliary members holding offices, and accepting leadership. Many hours have been spent in volunteer work. Our smallest county auxiliary makes cancer dressings, as they are needed by the Cancer Society. They are active in hospital. school, and church work. Another small county auxiliary has donated $50.00 each to three hospitals in their county. The Auxiliary takes charge of a booth at the carnival of the Delaware State Hospital, held each year for the entertainment of the patients. Hundreds of garments have been made for layettes for the Visiting Nurses Association.

We have given 6 nursing school scholarships —one girl finished her training this year, two started in September. The Auxiliary secured additional scholarships for all of the applicants. A local Service Club has given five full nurses scholarships, because of the work done by our auxiliary. The nurse scholarship committee is a very active group.

A successful blood donor day was sponsored —Auxiliary members, their families, and friends donated blood. Over 700 volunteer working hours have been given to the Red Cross Blood Mobile unit.

The legislative chairman reviewed all literature received from Washington and Chicago. The Auxiliary worked actively on the elections of November 1952, and feel that we did our part in getting out many votes.

"Today's Health" Committee has been congratulated by the National Committee for the subscriptions they sent in this year. We hope to continue our progress.

A Mental Health Committee has been established, at the request of the American Medical Association, and with the approval of our Advisory Committee.

The Medical Society of Delaware has helped and encouraged us. We appreciate their assistance and guidance. At their request, our auxiliary has contributed $220.00 to the American Medical Education Foundation Fund—each county auxiliary, as well as, the State Auxiliary contributed.

Social activities have been included in our program. One county has a dinner dance each; another county holds its meetings at the same time the County Medical Society meets—the Auxiliary members prepare and serve refreshments. This has increased attendance and interest in both organizations.

This year, we have grown in size, in interest, and in responsibility. We hope to continue our growth, to encourage close relationships between county auxiliaries, and to assist the Medical Society and our communities. There is much to be done.

In addition to our Auxiliary activities in Delaware—Mrs. Sylvester W. Rennie is active on the National Organization Committee, and Mrs. Willard F. Preston is the Eastern Regional Chairman of the National Mental Health Committee.

Respectfully submitted,
Pearl Preston, *President*

President Washburn: That is a splendid report, and if there is no objection the report will be received.

Dr. McGuire: Mr. Chairman, I move now that unless otherwise desired by the House, the remaining committee reports be read by title.

(Motion seconded.)

President Washburn: It has been regularly moved and seconded that the succeeding reports be read by title, unless the House desires to have any particular report read.

Dr. McGuire, I wish to make a point that in general we have acted as a reference committee, but if a committee desires very much to read it we won't be too rough.

You have heard the motion. Are you ready for the question?

(The motion was put to a vote and carried.)

President Washburn: First is the report of the Advisory Committee of the Woman's Auxiliary. It is recommended that that be read by title.

Report of Advisory Committee, Woman's Auxiliary

The Advisory Committee of the Woman's Auxiliary to the Medical Society of Delware has had no occasion to meet during the past year.

Informal discussions with Mrs. Pearl Preston, President of the Woman's Auxiliary about various matters have been held by the Chairman of the Committee.

Respectfully submitted,
Roger Murray, *Chairman*

President Washburn: The same for the report of the Committee on Cancer. (Read by title.)

Report of Committee on Cancer

During the past year there has been steady advance in the control of cancer along lines already well established in Delaware and from several new approaches.

The Delaware Division of the American Cancer Society continues its cancer detection centers in and around Wilmington, offering limited examinations to women. Similar cancer detection centers are maintained in lower Delaware by the Cancer Control Division of the State Board of Health. The success of this service is evident by the growing demand from industrial groups.

The Delaware Division augments the assistance by the Levy Court in meeting the expense of hospital bills to needy cancer patients by paying up to 20% of such bills, exclusive of those for professional service, but not exceeding $200.00. During the year 60 persons have been assisted in this manner, by the loan of apparatus and by furnishing service by practical nurses for home care. A social service maintained by the Delaware Division investigates all such cases brought to its attention before aid is extended.

Public education in cancer is carried out by the distribution of free literature during the annual campaign for funds, by lectures and by motion picturees. Professional education consists of supplying all physicians with a monthly bulletin by the State Board of Health and by subscription to the Journal, 'Cancer," for each hospital by the Delaware Division. The Delaware Division has also purchased a substantial number of books for the Library of the Academy of Medicine.

Cancer clinics are maintained at several hospitals so located in the state that every citizen has easy access to one of them.

An outstanding advance in cancer diagnosis and treatment is the establishment of an isotope laboratory at the Memorial Hospital in Wilmington. This facility is available to all and is financed by the joint contribution of a public-spirited citizen and the Delaware Division of the American Cancer Society.

Increasing public awareness of the problem of cancer control is manifested by a 30% increase in the amount of money collected in the annual campaign for funds, amounting to over $90,000.00 in 1953.

Despite these concerted efforts at control, 727 new cases of cancer were reported to the State Board of Health during 1952, and cancer remains the second greatest cause of death in Delaware. The encouraging side of the picture is the increasing interest in the early detection of cancer and the consequent proven increase in cure rate.

Respectfully submitted,

Douglas M. Gay, *Chairman*

President Washburn: Committee on Tuberculosis. The Council recommended that that be read.

Report of Committee on Tuberculosis

The Committee on Tuberculosis submits the following report for the past year. Due to the variance of dates of operations by the various groups, some statistics are from July 1, 1952 to June 30, 1953, while others are for the calendar year of 1952.

Tuberculosis Mortality—Delaware
(January 1, 1952 to December 31, 1952)

The tuberculosis mortality rate for the period was 16.7 per 100,000 population. The resident deaths were 51 which was a decrease of 9 from the previous year. The population figure used was 328,401 which showed an increase of 5,000 over the previous year. The reduction in 1952 was 2 deaths per 100,000 population, comparing favorably with the U. S. figures. The death rate for the white population was 11.3 a slight increase over the previous year. The rate for non-white was 50.2 which showed a decrease of 16.4 for the year. This indicates that the effort placed on this group the past year is beginning to pay dividends. This represents a combined effort by the various groups involved and they are to be commended.

Emily P. Bissell Sanatorium

The changing of the name of the Sanatorium to that honoring the pioneer of Tuberculosis work in Delaware was another step in considering Tuberculosis as an overall problem.

The Brandywine Unit reported 106 admissions and 125 discharges. The Edgewood Unit reported 66 admissions and 42 dischargees. Due to improvements and expansion of facilities at Brandywine and Edgewood now going on, there was a reduction in bed capacity, as indicated in the number of admissions reported.

State Board of Health

The mobile chest X-ray unit, which is a cooperative project of the State Board of Health and the Delaware Anti-Tuberculosis Society X-rayed 19,129 during the past year. More than 3,500 attended the periodical chest clinics held in the County Health Centers. There were more than 1,500 fluoroscopies.

Statewide Chest X-ray Survey

As this report is being written, plans are in operation for the conducting of a Statewide Chest X-ray Survey on a fast tempo basis. The committee has taken an active lead in the medical phases of this program. The furnishing of physicians as speakers, the request for cooperation of the physicians through letters informing them of the Survey, participation in workshop conducted by the State Nurses Association, together with furnishing consultation to the Board of Directors on the Survey Staff of the medical implications, have all been part of the functions of the Committee on Tuberculosis.

The goal of 200,000 X-rays has been set with 10 mobile units in operation. From such a program could well come the formation of a strong case finding program and an equally strong follow-up development that would place the State of Delaware in an enviable position in these areas.

The Medical Society of Delaware was one of the sponsoring groups of this Survey. Not alone will it be a considerable value to finding Tuberculosis, it also tends to develop a health consciousness in the people that will be of value in other areas of medicine.

Delaware Anti-Tuberculosis Society

The Society continued to lend its assistance to the over-all state program. With the Wilmington Visiting Nurse Association cooperating, 1,774 bedside nursing visits were made on 48 patients. In cooperation with the Rehabilitation Division 15 persons were rehabilitated. Other high spots of the Society's activities included:

Total X-rays taken in Diagnostic Clinics	3131
New Cases Diagnosed	81
Follow-up X-rays of old patients	353
New Cases of Tuberculosis	81
Active	26

2,073 Hospital routine X-rays at Delaware and Memorial Hospitals.

45 Schools enrolled in Health Habit Course.

4,396 Students enrolled in Health Habit Course.

The total number of new cases of tuberculosis diagnosed during the pear from all case-finding methods numbered 245.

Anyone wishing a more detailed report on the above activities may obtain them from the Delaware Anti-Tuberculosis Society.

Respectfully submitted,

Gerald A. Beatty, *Chairman*

President Washburn: I think that was a report well worth listening to. If there is no objection it will be received.

The report of the Committee on Social Hygiene, (Read by title.)

Report of Committee on Social Hygiene

As chairman of the Social Hygiene Committee, I am sorry that I have no report to make. During the past year no problems were presented to me to consider and there seemed to be no necessity for my calling a meeting of the Committee.

I have been informed that previous committee reports have merely consisted of previously published Board of Health statistics. It seems there is no need to burden the Society with a restatement of these figures.

In my opinion, if the past year is an example of the lack of duties of the Social Hygiene Committee, this committee might just as well be abolished.

The above statements reflect only my own point of view, as I have not consulted the other members of this committee about them.

Sincerely,

Lawrence Katzenstein, *Chairman*

President Washburn: The Committee on Maternal and Infant Mortality. (Read by title.)

Report of Committee on Maternal and Infant Mortality

In order to properly evaluate maternal and infant mortality in Delaware in the past year a study of some of the figures concerning the number of births and deaths is very helpful. To determine the differences in the various parts of the state the figures given are for the three countis.

In New Castle county there were 5,486 white and 885 non-white births. Of these 99.9% of whites and 97.4% of the non-whites were delivered by physicians. 99.4% of the whites and 95.0% of the non-whites were delivered in hospitals. Of these 99.0% of the whites and 95.5% of the non-whites had a pre-natal Wasserman test.

In Kent county there were 597 white and 166 non-white births. Of these 93.4% of the whites and 61.0% of the non-whites were delivered by physicians. 92.3% of the whites and 47.2% of the non-whites were delivered in hospitals. Of those who had a pre-natal Wasserman 94.9% were white and 82.6% non-white.

In Sussex county there were 1,279 white and 449 non-white births. Of these 97.8% of the whites and 52.9% of the non-whites were delivered by physicians. 90.1% of the whites, and 43.3% of the non-whites were delivered in hospitals. Pre-natal Wasserman tests were taken on 90.5% of the whites and 81.0% of the non-whites.

New Castle county had 380 white and 143 non-white premature births or a rate of 75.3 white and 169.2 non-white. In Kent there were 60 white and 41 non-white premature births or a rate of 81.9 white and 177.4 non-white respectively.

In Sussex there were 57 white and 50 non-white births or a rate of 54.4 white and 124.3 non-white respectively. This makes an average rate for the state of 73.6 white and 158.6 non-white. The total number of births was 7,362 white and 1,500 non-white.

The number of illegitimate babies was as follows by counties: In New Castle 101 white and 244 non-white. A rate of 20.0 and 288.7 respectively. In Kent 21 white and 76 non-white for a rate of 28.6 and 329.0 respectively. In Sussex 20 white and 123 non-white for a rate of 19.1 and 305.9 respectively; making a grand total for the state of 159 white and 446 non-white for a rate of 21.7 and 297.3 respectively.

The number of still-births by counties was: New Castle 65 white and 19 non-white for a rate of 12.9 and 22.5 respectively; Kent 13 white and 7 non-white for a rate of 17.7 and 30.3 respectively; Sussex 19 white and 14 non-white for a rate of 18.1 and 34.8 respectively. The grand total for the state was 104 white and 40 non-white with a rate of 14.1 and 26.6 respectively.

The number of neo-natal deaths by counties was: New Castle white 8, non-white 9, or a rate of 16.3 and 34.3 respectively. Kent white 2, non-white 1, or a rate of 19.1 and 25.9 respectively. Sussex white 5, non-white 0, or a rate of 25.8 and 27.3 respectively, giving a total for the state of 19 white and 12 non-white.

The total number of infants in the state who died under 24 hours was 76 white and 24 non-white. Thos who died in one week was 39 white and 12 non-white.

The total number of infants who died under one year was 164 white and 80 non-white.

The neo-natal rate for the entire state was 22.2 for whites and 53.3 non-whites or a total of 27.5 which compares with the national average of 28.6 for 1952.

The causes of infant mortality number about 35, and the chief of these in descending numerical order are: post-natal asphyxia and atelectasis, affecting 51 infants; immaturity affecting the same number; congenital malformations affecting 42; other birth injuries affecting 13; intra-cranial and spinal injury at birth affecting 12; pneumonia affecting 20; and the remainder from miscellaneous causes.

There were only four maternal deaths in the state for 1952. Two in New Castle and two in Sussex. Of these two were white and two non-white. The causes of death were puerperal phlebitis and thrombosis, ectopic pregnancy, laceration of perineum, and post-partum hemorrhage. This makes a mortality rate of .45 compared with the national average of .66 for 1952.

As before the possibility for obtaining a reduction in infant death rates lies in salvaging a greater number of immature infants, possibly through improved maternal care and a better understanding of the needs of the premature infant. Since it is known that it is in the first trimester of pregnancy that an appreciable number of congenital malformations of the heart, eyes, ears and central nervous system occur, the future may hold some hope in preventive care during this critical period. One instance of this is the prevention of German Measles in the mother during this time.

The Committee is deeply grateful to Mr. Cecil A. Marshall, Statistician of the State Board of Health for his invaluable help in preparing this report.

Respectfully submitted,
A. H. Williams, *Chairman*

President Washburn: Committee on Heart Disease. (Read by title.)

Report of the Committee on Heart Disease

We respectfully submit the following report on reference to heart disease in Delaware:

One out of every three persons dies of heart disease in some form or other. Most of these deaths are due to arteriosclerosis and hypertension. Rheumatic heart disease is on the wane, although it is estimated that it is still the most common cause of death in childhood and young adults. As a result of a survey in New York state rheumatic heart disease is the cause of more than five times as many deaths as whooping cough, measles, epidemic meningitis, and anterior poliomyelitis combined. There are still more than 460,000 cases of rheumatic heart disease in this country. However, advances are being made in regards to prophylaxis against the Group A hemolytic streptococci. This is being accomplished by the administration of penicillin, aureomycin, or sulfanilamide drugs. Research is particularly being performed against arteriosclerosis with low cholesterol and reduction diets. The greatest advances are being performed in the surgical treatment of congenital heart diseases as well as corrective treatment for mitral stenosis.

In Delaware we are fortunate to have heart clinics in each hospital. At monthly intervals there is a congenital heart clinic where cases are evaluated as to the possibility of being candidates for surgery. Also, candidates for valvular operations of rheumatic fever are surveyed. Through the help of the American Heart Association many indigent cases have been helped. Also, private cases have been handled through the clinic with ethical relationship with the family physician.

A challenge is open to the medical profession for better care of the indigent heart patients. It is commendable that the Society has devoted the last three papers of its meeting this year along this consideration. Second a challenge is before the Society to uncover impending heart disease. Similar to the tuberculosis program a statewide survey of doing electrocardiograms should be considered. Finally, in cooperation with the State Board of Health and the Delaware Heart Association in the handling of rheumatic cases who need long periods of bedrest, this problem should be solved. Courses in electrocardiography are being held in the various hospitals, and it is our feeling that much more is possible to be done through the mediums of radio, television, and other means of education.

Respectfully submitted,
Edgar R. Miller, *Chairman*

President Washburn: Committee on Diabetes. (Read by title.)

Report of Committee on Diabetes

In November 1952 the American Diabetes Association conducted a drive known as Diabetes Week in which they tried to find throughout the country as many previously unknown diabetics as possible. This Committee cooperated with the American Diabetes Association by sending to each member of the State Society some weeks before the National Campaign a pamphlet containing several simple measures to discover and diagnose diabetes in individuals before they had any symptoms. Especially was it emphasized that examinations of the urine or blood should be made 1½ to 2 hours after a large carbohydrate meal. The examinations should not only be made in the fasting state.

March 1 a questionnaire was sent to every member of the State Society. There were 121 replies. Thirty-one of these were from physicians who did not treat diabetics. Ninety replies were from physicians who do treat diabetics and of these 90 the following answers were compiled:

In answer to question 1, "How many new diabetics have you found since November 1952?" the total number was 261. It is not quite clear whether this really represents 261 previously unknown diabetics. Some of those answering the questionnaire seemed to understand the question as meaning new diabetics to that particular physician rather than a newly discovered diabetic. A few of these also may represent routine examinations which showed either glycosuria or hyperglycemia but which were not followed for a recheck with glucose tolerance or other appropriate measures. However, the figure does suggest that a goodly number of previously unknown diabetics were discovered by the medical profession in Delaware during the past year.

Question 2, "How many diabetics under your care are under 18 years of age or were under 18 years when the disease was first discovered?" The total answer to this question was surprisingly high, numbering 92.

Question 3, "Do you regularly examine urines for sugar and determine blood sugar levels post prandially?" The answer to this question was 76 yes and 12 no. The 12 no, meaning that blood sugar levels were not examined regularly post prandially, is an encouraging low figure. It is hoped that in the future all individuals will examine blood sugars in diabetics post prandially as well as in the fasting state. This question No. 3 may have been somewhat ambiguous. It is possible that some individuals reading the question did not understand that in the first part, "Do you regularly examine urines for sugar?" that this also meant post prandially.

Question 4, "What proportion of your diabetic patients follow a measured diet with reasonable accuracy?" The answer to this question was quite varied. Seventeen replies were 100 per cent. There were 30 replies between 75 and 100 per cnt, 19 replies between 50 and 75 per cent, 5 between 25 and 50 per cent, and 4 below 25 per cent. One wonders whether those answering the questionnaire differentiated accurately between patients who had a definitely prescribed diet and those who actually followed such an accurately prescribed diet. The answers certainly would indicate a very high per cent of patients following a measured diet. This would seem to be higher than one would have expected from the experience of most diabeticians.

Question 5, "Approximately what percentage of your patients take insulin and what percentage of these take NPH insulin?" This question was probably not a good one in that it was a double question. The answers, however, are summarized as follows: 17 physicians reported that 100 per cent of their patients take insulin. Twenty-eight physicians reported that 75 to 100 per cent take insulin. Eleven reported 50 to 75 per cent of their diabetic patients take insulin, 6 reported 20 to 50 per cent and it was not clear in 24 instances whether they took insulin or not. Of those patients who did take insulin, in 14 instances NPH insulin was used in all of their diabetics. Fifteen physicians reported that NPH insulin was used in over 75 per cent of the patients. Twelve reported that NPH insulin was used between 50 and 75 per cent of their diabetics. Another 12 reported its use in between 20 and 50 per cent and 6 individuals reported it was used in less than 20 per cent of their patients and in the same 24 as indicated previously it was uncertain.

Summary

1. The Diabetes Committee of the Medical Society of Delaware sent a pamphlet to all members in November 1952 suggesting simple measures to detect previously unknown diabetics.
2. In March 1953 a questionnaire was sent to all members and from the answers to this questionnaire it was found that 90 physicians found 261 previously unknown diabetics in the previous year—that these 90 physicians were treating 92 diabetics whose disease started before the age of 18 and that the great majority of these 90 physicians examined urines and blood for sugar post prandially, and that in the large proportion of patients a measured diet was followed with reasonable accuracy, and lastly, that NPH insulin was used in perhaps a little less than half the patients.

The Committee wishes to announce that Diabetes Week this year is November 15 to 21.

Respectfully submitted,
Lewis B. Flinn, *Chairman*

President Washburn: Committee on Medical Service and Public Relations. That is marked to be read.

Dr. Mayerberg: Mr. Chairman, I will read it, if I may. I have a supplement to the report besides this. I submitted this to Dr. Bird along about August, and some things have happened since then that I think we ought to know about.

Report of the Committee on Public Relations and Medical Service

Your committee has had a quiet year. There have been no speeches by its members, and no forums have been held.

This committee cooperated fully with the Public Laws Committee during the last session of the State Legislature. There were several bills that were opposed and defeated. This was accomplished by the great help of individual members of our society who were called upon by this committee to appear before committees of the Legislature to speak against objectionable bills. In a number of instances it was necessary to appear on several occasions. The Public Laws Committee will no doubt present a detailed report.

Your committee was successful in obtaining wide publicity on the radio and in the press during the last AMA meeting.

AMA is vigorously opposing the bill in Congress to expand the Social Security plan, which would embrace physicians, dentists and many others. Your committee recommends that our society support AMA in this issue and notify our representatives in Congress of our action.

We are pleased to report great improvement in covering night and emergency cases throughout the state. There is still room for improvement.

The Grievance Board continues to do a good job. It is our feeling the very fact the public knows of the existence of the Board, lessens the number of complaints.

We urge our members to continue their support of all Community drives, and to take more interest in civic affairs.

We also urge them to be a little more active in church and club affairs.

Respectfully submitted,
Emil R. Mayerberg, *Chairman*

Dr. Mayerberg: Your committee thoroughly approves the forums on health to be held in this city during the next few months.

Mr. President, in a leter from the Washington office of the A.M.A. a few weeks ago, the physician in charge, Dr. Wilson, said that he had talked to one of the senators, and the senator suggested to him that state societies and county societies invite the members of Congress to their meetings, both scientific and social meetings, so that they can meet each other and grow to know each other.

I talked to our President and also to our Executive Secretary about it and they agreed that that was a very good suggestion, and they sent invitations to our members in Congress. We have two acceptances. Senator Frear and Representative Warburton have agreed to attend our social hour tomorrow evening. They will not be at the speaker's table.

So if any of you gentlemen know these men personally, I ask that you greet them at 6:45 tomorrow evening and make them feel at home, and then take them into the banquet room and seat them at your table. If I find that nobody has adopted these two men, Dr. Washburn has delegated that very pleasant duty to me, and I shall do it. But I know that some of you folks from down Dover way know Senator Frear. It would be nice for him to sit with you and talk. Those of you in the city who know Congressman Warburton should do the same thing.

President Washburn: Thank you very much. If there is no objection, the report will be received.

I think the next one is the Committee on Military and Veterans' Affairs. (Read in full.)

Report of Committee on Military and Veterans Affairs

This report is concerned chiefly with spreading the knowledge gained at a conference on Veterans Medical care held in the A.M.A. headquarters in Chicago on September 1, 1953 and attended by a member of this committee.

We are concerned with the medical and hospital care of veterans with non-service connected disabilities. It is agreed that the Federal Government should provide every reasonable benefit to veterans who were disabled as a result of military service. However, the Federal Government also grants free lifetime medical and hospitalization benefits to each war veteran who claims he cannot afford private care—even though he suffered no mishap while in uniform.

The U. S. veteran population is increasing at a rate of about 1,000,000 each year and we already have about 20,000,000 veterans in a population of 160,000,000 people.

We should all become familiar with the legislative history of veterans medical care. Every successive law with the one exception of the Economy Act of 1933, has further expanded the V. A. medical care program. Public Law #791, enacted in 1950, over Presidential veto is significant of this trend. It entitles all Spanish American War Veterans to free out-patient medical treatment, regardless of the nature or origin of their disabilities. This brings up the importance of the age of the veteran. Older veterans are hospitalized more frequently for civilian incurred ailments than for service connected disabilities. In January, 1952, 46.3% of the World War II patients in the V. A. hospitals had service connected disabilities compared to 19.7% of the World War I patients and 3.4% of patients from earlier wars. The pressure of non-service connected cases is the big factor in V. A. hospital costs. With an aging veteran population, it is obvious that future facilities and personnel will have to be much greater than at present.

V. A. hospital construction is still going on. In 1952—18 hospitals with a total of 13,231 beds were being constructed and six new hospitals with a total of 5,000 beds were in the advanced planning stage. However, hospitals already existing have three times the number of beds needed for service connected cases. Incidentally, the cost of V. A. hospital construction is $20,000 per bed compared to $16,726 per civilian hospital bed. In these more expensive beds, the average G. M. S. patient stays 30 days as compared with 7½ days for a patient with similar ailments in a civilian hospital.

During 1951 — 511,895 patients were treated over a year's time, 15.4% of whom were service connected and the remaining 84.6% (432,995) were hospitalized for disabilities received in civil life. These 432,995 veterans signed "paupers oaths". Were they truly unable to pay? Comptroller General Lindsay Warren in a report to Congress of 500 of these veterans, picked at random, found 336 had annual income of $4,000 to $50,000, with 25 of these having real property or other assets between $20,000 and $50,000.

In 1952, a former V. A. chief medical director told a Senate Committee: "It is not unusual for veterans to sign an application and come in for treatment and deposit for safe-keeping in the hopsital, savings bonds and securities for $5,000 or $6,000, and there have been estates of as much as half a million dollars left by veterans dying in V. A. hospitals of non-service connected illnesses.

We also have the paradox of V. A. hospitals seeking reimbursement from patients carrying health insurance when it would seem that prepaid health insurance would disprove his alleged "inability to pay".

The inescapable conclusion from these facts is that there is no reason why so large a group in the nation should be singled out for favored treatment by the Government simply because they performed a duty of citizenship. Veterans who have made no special sacrifice in the course of their service should stand with all other members of the population, experiencing the economic bumps and depending on their own resources to the same extent as other taxpayers.

Why should a Nation spend more than $350 million for medical care not on the basis of the greatest health needs of its citizens but on the basis of who wore a uniform.

The Committee on Veterans and Military affairs of the Medical Society of Delaware therefore makes the following

Recommendations:

(1). The Medical Society of Delaware agrees with the conclusions drawn from a survey entitled "Medical and Hospital care of Veterans with non-service connected disabilities" made by the Committee on Federal Medical Services of the American Medical Association.

(2). That we concur in the recommendation of the A.M.A. House of Delegates in June, 1953, that the Congress enact legislation limiting V. A. medical care and hospitalization benefits to:

(a) Veterans with peacetime or wartime service whose disabilities or diseases are service connected or aggravated, and to

(b) Veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the expenses of necessary hospitalization, provided that treatment is given within limits of existing facilities.

(3). That the facts which led to the above recommendation be publicized in every possible way. First of all, that every member of organized medicine be made aware of these facts by devoting at least one meeting of the three County Medical Societies to this purpose; and second, that each County Society appoint an active and aggressive committee on veterans affairs to place these facts before lay people by every possible means.

(4). That an article be prepared for the State Medical Journal summarizing the facts and conclusions and recommendations of the survey of the A.M.A. entitled "Medical and Hospital care of Veterans with non-service connected disabilities."

Respectfully submitted,
Roger Murray, *Chairman*

President Washburn: Thank you very much. That is a very thorough report. What will you do with the report of the Committee on Military Affairs,

(Motion made and seconded that the report be received.)

President Washburn: Are there any remarks? May I ask, Dr. Murray, do you wish advantage to be taken of the opportunity to publicize this now —of course, we are going to have to give the newspaper people something—or do you want that to be worked out later?

Dr. Murray: I believe publicity can be given beginning now.

President Washburn: I intend, unless the House disapproves, to release information tonight, for example, that we have agreed to support the State Highway Department, that we have appropriated $1,000 for the tuberculosis and $1,000 for the Delaware Academy of Medicine, and include this material, if that is acceptable. They want news, and this is the proper time.

Dr. Murray: Incidentally, since the report was written we have received an invitation to attend a meeting in Washington, D. C., on November 15th, Sunday. There will be representatives from the American Medical Association for a panel discussion of this problem, and a big delegation from the state of Delaware would certainly be a fine thing.

President Washburn: The motion is to receive and to adopt the recommendations of the committee. That motion was made by Dr. McGuire.

If there is no objection, the report of the committee will be treated as all others: it will be received and the recommendations concurred in. I head no objection; so ordered.

Dr. Shands: May I say something, Mr. Chairman? I think, to follow this up, if we are going to get anywhere we probably have got to start in conferring with our own American Legion, because the American Legion is the organization that we are going to run head-on into, as we all know.

President Washburn: Don't leave out the Veterans of Foreign Wars.

Dr. Shands: Yes. A good many of us are probably American Legion members. In the first place, the Veterans' Committee of the Medical Society of Delaware ought to remain as an independent committee, and I should like to see this Veterans' Committee try to contact the American Legion. If there is a medical committee of the American Legion, which I think there is, we should meet with them and see if we can't get our ideas across to the Legionnaires.

President Washburn: And the Veterans of Foreign Wars also.

Dr. Shands: Yes. I mean all those groups.

Dr. Alden: I would like to go along with what Dr. Shands has said. At this conference in Chicago, it was brought out that a great deal of opposition to the A.M.A.'s ideas was through the big veterans' organizations, but mostly on a national level. They felt that the average member of a veterans' organization, who was also a taxpayer, might be a little more receptive to talking to on a local basis. I think it's a good idea.

Dr. Shands: I think if we started on a state level we may get something going.

President Washburn: Rather than starting out with newspaper publicity? Would that be acceptable to your committee, Dr. Murray?

Dr. Murray: Yes.

President Washburn: The Chair will entertain a motion to the effect that it is the sense of the House that the purposes of the Committee are approved but suggest that as a preliminary step an effort be made to hold meetings with the various veterans' organizations with a view to perhaps converting them as a part of the overall program. Would you be willing to make such a motion?

Dr. Lattomus: I am opposed to that on the grounds that we are putting off something that we ought to get started right now. It seems to me that this is a good time to get into publicity on this thing and start the ball rolling, rather than to put it off until we talk to the veterans' groups.

President Washburn: The House must decide. Two points of view have been presented. The Chair will entertain a motion.

Dr. Shands: I don't think this is new publicity because it has been in the papers already. Whether or not our papers have picked it up, it has been in the papers. I think it is perfectly all right to give out anything you want to the papers at this time, but I would follow it up with some attempt to get together with the veterans' groups. I am sure that such people as Dr. Rees, who has been the state commander, and Mr. Tom Muldoon, state commander, would be very receptive to getting together with a group of doctors.

President Washburn: There is no motion before the House, is there?

Dr. Barnes: Mr. President, I believe that this could be done on a local level better than on a state level. I believe you will get further along with it.

PRESIDENT WASHBURN: Am I to understand that you mean that the members of the component county societies should approach the posts in their areas? Is that what you mean?

DR. BARNES: Yes.

DR. SHANDS: I think he is right. The lower you start and work up, the firmer the foundation.

PRESIDENT WASHBURN: The Chair must have a motion. The Chair declares that at the moment there is no motion before it, and since this is an important thing we ought to have the opportunity of the House to declare what it wants.

DR. MURRAY: Mr. Chairman, that was the idea in recommending that each county society have a separate committee on veterans' affairs.

PRESIDENT WASHBURN: So that is a part of your report?

DR. MURRAY: Yes.

PRESIDENT WASHBURN: Then if there is no objection, the report will be received and copies sent to the various county societies so that they may be governed accordingly. Is that acceptable?

DR. MURRAY: That's all right.

PRESIDENT WASHBURN: And you still want newspaper publicity?

DR. MURRAY: Yes.

PRESIDENT WASHBURN: All right; it shall be done that way. The next committee is the Committee on National Emergency Medical Service. By the way, we laid on the table the motion to combine the committees until we could hear the report of the Committee on Military and Veterans' Affairs. Will someone move that we do not combine the committees, if that is the sense of the Society?

DR. SHANDS: I would so move, Mr. Chairman, but as a matter of fact, you don't have to do anything about it.

PRESIDENT WASHBURN: That's true! it was laid on the table.

Next committee, the Committee on National Emergency Medical Service. (Read by title.)

Report of Committee on National Emergency Medical Service

While there have been no stated meetings of this committee during the past year the members have been active on a county and local level. Our President, Dr. Victor D. Washburn, represented Delaware at the Medical Civil Defense Conference in New York May 31, 1953 sponsored by The Council On National Emergency Service of the A.M.A.

Delaware has civil defense legislation. The Act was passed in 1951. The Civil Defense Staff has a total of 9 employees. The Director is Lt. Col. D. Preston Lee, 85 E. Del. Ave., Newark, Del. The Medical Director is Executive Secretary of the State Board of Health. Appropriations for 1953 were $31,000 of which $60,000 was Medical. In addition there have been set up local appropriations for defense purposes. There is a written Medical Civil Defense plan and operating procedures are partially completed. The assignment of physicians to civil defense jobs has been partially completed.

The State Medical Society Emergency Medical Service Committee is quite willing to aid in any way it can in the civil defense program of Delaware, however, because of the size of the state with Wilmington the one target area, the Committees of the County Medical Societies can adequately cope with the present situation.

Respectfully submitted,
JOSEPH R. BECK, *Chairman*

PRESIDENT WASHBURN: The Committee on Rural Medical Service. Dr. Prickett, do you want to read your report?

DR. PRICKETT: Mr. President, the report last year was quite lengthy, if you remember. It was acted upon by the Council following the meeting. I had a letter from you to that effect. This year there has been very little change. I have a report, but there has been very little change.

PRESIDENT WASHBURN: Do you wish to read it by title?

DR. PRICKETT: Yes.

Report of Committee on Rural Medical Service

Your committee wishes to report that there has been very little change in Rural Medical Service in Delaware during the past year and that even the little changes have been in the line of improvement.

Our President, Dr. Washburn, has very properly suggested that the work of this committee might well be included in our overall plan to study the subject of Medical Care of the Indigent and Medically Indigent in Delaware. A part of the program of our State Society meeting October, 1953, will be devoted to a presentation of this subject by well known authorities from Maryland and Pennsylvania, and it is the hope of your committee that this may guide us in providing better Rural Medical Care.

Respectfully submitted,
C. J. PRICKETT, *Chairman*

PRESIDENT WASHBURN: Committee on Care of Colored People. (Read by title.)

Report of Committee on Care of Colored People

There is wide variation in opinion among the several members of the committee with one reporting that to his knowledge no one in his territory lacks for medical attention except as brought about by the shortage of hospital accommodations. Several question the need for this committee, feeling that the needs of the colored should be considered along with those of other underprivileged groups. However, as long as the needs of the whole group are not met, the longer will any special needs of the Negro remain unrequited.

There is common agreement that there is a shortage of hospital beds including a serious lack of facilities for maternity care in spite of efforts of all hospitals to extend their coverage. Scant provision for those of limited income merits consideration particularly outside of Wilmington and vicinity. Aging of the population and the increasing cost of diagnostic measures magnifies the need not only for outpatient hospital care but also for services for those confined to their homes.

Some provision must be made for the group now delivered by midwives as their ranks continue to give way to the toll of years. The number of midwives has been halved in the past ten years and yet the number of births attended by them has remained relatively constant and the number of individuals served by them actually increased as an undetermined number of patients were attended by both a midwife and a physician to whom the birth is credited.

Dental services provided in the schools by the State Board of Health have measurably improved the dental health status and suggest the advisability of extending the scope of corrective health programs for the school population.

Special mention must be made of housing accommodations, particularly those offered for tenant and migratory workers. There is need for a survey of these accommodations, their basic inadequacies and the steps necessary to have them conform to minimum standards. People forced to huddle together in "chicken coops" cannot be expected to maintain a satisfactory state of health or of social decorum.

Respectfully submitted,
Winder L. Porter, *Chairman*

President Washburn: The Committee on Industrial Health. (Read by title.)

Report of Committee on Industrial Health

Large industries in our state have established health programs with adequate supervision by full-time physicians or by physicians whose major interest and responsibility are in this branch of medicine. Such physicians become specialists in the field and are available for guidance and consultation on industrial health practices to other industries and physicians.

Much industry in our state have plant units employing less than one hundred workers. Dependence for medical service to these groups must be upon private practitioners in the vicinity of the plants to be served. Management in these smaller plants, in many instances, has not found the need or seen the inherent values of a modern occupational health program.

"Aside from early detection of occupational disease, prevention of injury to workmen, emergency care of injuries, and what every good practitioner ought to know, there are certain categories of knowledge involved: air pollution, illumination and vision in relation to occupation, effects of industrial noise and impaired hearing, occupational cancer, employment of the physically handicapped, rehabilitation not covered by industrial compensation, job placement requiring knowledge of all in-plant conditions, multiple screening and periodic health examination, health education of the workers, human relations psychology, the scope of medical nursing in industry and how to carry out non-technical projects." (From "Report of the President", Medical Society of the State of New York, 1952-1953).

At the request of the chairman of this committee, Dr. Howard L. Reed represented our Society at the joint Conference of the A.M.A. Council on Industrial Health and the Chairmen of the State Committees on Industrial Health held in Chicago in January of this year.

A report on Periodic Health Examinations in Industry appeared in the January issue of the Delaware State Medical Journal.

The Committee recommends acceptance of the following principles:

(1) That every worker should have the best health possible,

(2) That industry and medicine have joint responsibility to provide health coverage for all workers,

(3) That our county societies provide indoctrination and training in the field of industrial health for its members.

Respectfully submitted,
Lemuel C. McGee, *Chairman*

President Washburn: The Committee on Vocational Rehabilitation. (Read by title.)

Report of Committee on Vocational Rehabilitation

At the outset it may be stated that no meetings of the committee were held. It was, however, gratifying to review the State Rehabilitation Division's report presented to His Excellency, J. Caleb Boggs, Governor of Delaware.

The report indicates that a useful work is being done by the joint State-Federal program in preparing Delaware's disabled citizens to become self supporting. It is noteworthy for the fiscal year ending June 30, 1953 that 447 disabled citizens were given various services and their cases closed as rehabilitated. It is also noted that 77% of these 447 persons were unemployed at the time of referral. These are now employed and are self sufficient.

Your committee congratulates this division of the State-Federal program and trusts that the work and performance will continue showing substantial gains. We express our sincere appreciation to our state and federal governments for their interest in Delaware's disabled citizens. As physicians they are our interest. They are either mentally or physically sick.

Respectfully submitted,
E. L. Stambaugh, *Chairman*

President Washburn: The Committee on Advisory, Curative Workshop. (Read by title.)

Report of Advisory Committee, Delaware Curative Workshop

During the past year, the Advisory Committee to the Delaware Curative Workshop has met twice and has consulted at length about changes in the program of the Workshop, itself.

There has been a considerable increase in the amount of work done by the Delaware Curative Workshop and it is benefiting more doctors all the time. It demands our continued support. It is filling a job that the hospitals cannot possibly do.

Respectfully submitted,
Irvine M. Flinn, Jr., *Chairman*

President Washburn: The Committee on Medical Economics. That is to be read. Dr. Dobson, you made that report; would you like that to be read?

Dr. Dobson: No.

President Washburn: It may be read by title.

Report of Committee on Medical Economics

The committee held no meetings. Members communicated by mail. No specific economic problems were presented to the committee. A brief questionnaire was prepared and sent to each member of the society. The primary reason for this questionnaire was to develop some worthwhile problem for future study. The questions were worded to get the opinion of the membership regarding (1) financing the care of the indigent patient (2) the percentage of the physicians' income received from insurance plans (3) the economic relationship of Physicians and Hospitals. We know now that this latter question should have been omitted since there is a committee for this purpose.

Membership in the Society on May 1, 1953 was 347.

The number of questionnaires returned was 102.

The following is a summary of the questions and answers.

I. Type of practice:	General	40
	Special	62
II. Do you work for a salary?	Yes	15
	No	88
III. Do you believe the cost of the medical care for the indigent patient should be paid:		
a. by local or State taxes		63
b. by Federal taxes		5
c. by the physician as a charity		39
d. by other means		14
e. How many patients do you see per month excluding those seen in hospitals and clinics?	High	80
	Low	1
	Avg.	14

IV. What do you regard as the criteria for determining that a patient is indigent?
Answers to this question varied. They will be discussed in the final comments.

V. What percentage of your income do you receive from:

a. Blue Cross (Medical and Surgical)	High	75%
	Low	0.5%
	Avg.	17.3%

The average reported for the two lower Counties was 8%. 75% of these returns were from general practitioners.

The average reported for the upper County was 20%. 70% of these returns were from specialists.

b. Other medical insurance	High	12%
	Low	0%
	Avg.	4%
c. Workman's Compensation	High	80%
	Low	0%
	Avg.	Less than 1%
d. State Welfare and other Gov. Agencies	High	20% (V. A.)
	Low	0%
	Avg.	Less than 1%
e. Directly from patients	High	100%
	Low	13%
	Avg.	76%

VI. Are your Hospital relationships satisfactory? Yes 97
No 5

Cooperation in this effort was obtained from 30% of the membership. The opinions favored local or State taxes as the preferred method of financing indigent care. Very few wanted Federal taxes for this purpose. About one-third thought the physician should finance the care of the indigent in whole or in part as a charity.

There is no definite uniformity in the criteria for deciding what patent is indigent. It is believed that some uniform criteria might be useful to avoid inequities. Many believe the decision of a social worker should be the guide. Many based their decision on the patient's ability to own an automobile. Several believe that the patient should be considered indigent if the cost of their Medical Care would deprive them of the necessities of life. No clear method of determining this question has been put forth.

About 75% of the income of those reporting is received directly from the patient. One member expressed the opinion that the Medical Profession should not endorse any form of insurance. Some specialists receive as much as 75% of their income through Blue Cross. The average was less than 20% through Blue Cross and "Blue Shield."

Regarding hospital relationships, the great majority had no complaint. A few Wilmington physicians noted a bed shortage. Some complained that the admission policies at the hospitals are not fair. A few physicians want more control over the hospital administration by representatives of the medical profession. The question of the Hospital employing a physician as a salaried employee and charging the patient a fee for his services was raised by one member.

Further study by this committee might be of some value in the problem of criteria for indigency.

Respectfully submitted,
Leslie M. Dobson, *Chairman*

President Washburn: Committee on Fees for Welfare Patients. (Read by title.)

Report of Committee on Fees for Welfare Patients

Your committee wishes to report that the Council of the Medical Society of Delaware carefully considered our 1952 report and was of the opinion that Delaware should make a great effort to be one of the leading States in the Union in its overall program for Medical Care of the Indigent, and our President, Dr. Washburn, was instructed by the Council to request this committee to undertake this work.

During the 1953 meeting of the Medical Society of Delaware, a program outlining the plans now in operation in the City of Baltimore and the States of Maryland and Pennsylvania will be presented by Dr. J. Wilfrid Davis, Director of the Medical Care Section of the Baltimore City Health Department, Dr. Mark V. Ziegler, Chief, Bureau of Medical Services and Hospitals of Maryland, and Dr. C. L. Palmer, Chairman and Representative of the Medical Society of the State of Pennsylvania's Healing Arts Advisory Committee to the State Department of Public Assistance.

Following the State Society meeting, your committee will continue to study the problems connected with the Medical Care of Public Assistance recipients, as well as those indigent and medically indigent persons who are not under the jurisdiction of the State Department of Public Welfare.

Respectfully submitted,
C. J. Prickett, *Chairman*

President Washburn: The Committee on American Medical Education Foundation. Dr. Hudiburg.

Dr. Hudiburg: I would like to read it.

President Washburn: Before you read it, I am sure some of us have been solicited to pay money by the Chicago office. Do you want it to go through your office, or doesn't it matter?

Dr. Hudiburg: It doesn't matter. This first report was written on August 26th and filed with Dr. Bird. I have a supplementary report; that is the reason that I am reading it.

Report of the Committee for American Medical Education Foundation

During the first 6 months of 1953 grants totaling nearly two million dollars were awarded the nation's 79 medical schools by the National Fund for Medical Education. Part of this, of course, was donated by physicians, and came from the American Medical Education Foundation.

In Delaware in 1952, 69 contributors gave $2,257.00 which was really not bad compared with some other states, and also in view of the fact that approximately 25% of Delaware's doctors make contributions directly to their Alma Maters.

So far this year, only 37 members have donated $1,175.00. This is nothing about which to be proud. A great deal of time was spent in preparation for the solicitation. We have had a committee of seven, with an additional 24 "workers" who were supposed to canvass every doctor in the state. A few "workers" have worked very hard and made an excellent showing; several others have accomplished fair results; and some have merely tried. The poor result is undoubtedly the fault of your committee.

All that we can say is: First, that more money will be contributed, the year is not over yet. Second; we will continue to try. And, Third; it is hard to know just when to stop begging before becoming a nuisance.

Respectfully submitted,
C. L. Hudiburg, *Chairman*

Dr. Hudiburg: Now I have a much more optimistic report as of October 10th, two and a half months later.

Supplemental Report to the House of Delegates Committee for the American Medical Education Foundation

This committee's report can never be completed until the end of the year. Since the report of August 25th was written, additional money has been collected. At the present time 101 doctors have given $3,421.00 thru the A. M. E. F. Nine others have made pledges to pay $445.00. Four organizations have given $220.00 making a grand total of $4,086.00 to date. It is estimated that at least 15 or 20 more will give by the end of the year and our total for this year should be at least double the amount given last year.

In addition, approximately 86 or 25% have given directly to their Alma Mater this year. This makes a total of about 60% of our members that have given, but leaves about 142 who have not given.

In all, this is an excellent showing for Delaware!

PRESIDENT WASHBURN: Thank you very much. If there is no objection, it will be received.

Next is the report of the Committee on Hospital-Physician Relationships. (Read by title.)

Report of Committee on Hospital-Physician Relationships

The Committee on Hospital-Physician Relationships is pleased to report that no grievances between hospitals and physicians in Delaware have been brought to its attention during the past year. We hope that this evidence of cordial relationships will continue.

Respectfully submitted,
C. E. Wagner, *Chairman*

PRESIDENT WASHBURN: The Grievance Board.

Report of Grievance Board

Your Committee has been active and all complaints to date have been adjusted satisfactorily to all parties concerned. There was one complaint from Sussex County, three from the city of Wilmington, and none from Kent County or New Castle County. These complaints for the most part were concerned with alleged overcharges for services rendered. There was one case of malpractice. Much information and advice was given to people over the telephone who refused to make a formal written complaint over their signature. These, also, were settled satisfactorily.

Respectively submitted,
I. LEWIS CHIPMAN, SR., *Chairman*

PRESIDENT WASHBURN: Next is the report of the Delegates to A.M.A. Dr. Fitchett.

Report of Delegate to the A. M. A.

The 102nd annual meeting was held in New York City June 1-5, 1953. It was the largest medical meeting ever held.

One of the most important decisions was on the care of veterans. After postponing action at the Denver meeting last December, the House of Delegates officially opposed free medical care for veterans with non-service connected disabilities. Except for cases involving tuberculosis, or psychiatric or neurological disorders, they recommended that responsibility for all non-service connected cases be returned to the individual and the local community.

Eleven resolutions referring to statements by Dr. Paul Hawley in the public press were considered, and no action taken. The House deplored broad generalizations and ill-advised and poorly prepared statements that often fail to convey the intended meaening. It admitted that some doctors of medicine violate the Principles of Medical Ethics. The House stated that the method evolved for dealing with the problem of unethical conduct and practices by the A. M. A., while far short of perfection, is still the best means of correcting these abuses and safeguarding the public. The House urged the Judicial Council to study suggested revisions concerning methods of joint billing, and it urged the A. M. A., as the official spokesman for the entire medical profession, to inform its members and the public of its stand on matters pertaining to abuses and evils in the practice of medicine.

The most controversial matter before the House was the report of the Committee for the Study of Relations between Medicine and Osteopathy (the Cline Report). The report urged co-operation between medicine and osteopathy and recognition of the fact that osteopathy is no longer a cult. The House voted to take no action on the report for one year, to allow further study by the state associations for instruction of their delegates.

A resolution considering certain aspects of the regulations for Maternal and Child Health and Crippled Children's Programs was considered. These government regulations provide that the diagnostic services would be made available to any child (a) without charge, (b) without restriction or requirement as to the economic status of such child's family or relatives or their legal residence and (c) without any requirement for the referral of such child by any individual or agency. It was brought out during the discussion that no means test may be used and that a state which does not submit to these requirements can have no funds allocated to it. The House voted that the Board of Trustees work to eliminate this particular part of the regulations. It was this action which evoked the diatribe that appeared in "LIFE," June 22, 1953.

Dr. Walter B. Martin of Norfolk, Virginia, was selected as the President-elect. The The 1953 Distinguished Service Award was presented to Dr. Alfred Blalock of Baltimore.

Respectfully submitted,
LAWRENCE L. FITCHETT, *Delegate*

PRESIDENT WASHBURN: You have heard the report, which is a recommendation that the House of Delegates of the American Medical Association declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states, and that the state associations be requested to accept this responsibility. Do you wish to take any action upon this statement as coming from our delegate to the American Medical Association?

DR. BIRD: Mr. President, so long as Dr. Fitchett is not here, and Dr. McGuire, who was also present, is here, I would like to get his slant.

DR. MCGUIRE: That whole subject was opened at the House of Delegates meeting last year at Denver during the interim session, and further explored at the A.M.A. annual session in New York. It came out of a reference committee and went back to a reference committee for further study and consultation. But the gist is as Dr. Fitchett has put it, that it will be up to the component state bodies to make the decision as to whether they want any change in the relationship between osteopathy and medicine. It will be within their province to make the determination. It may be done on a national level, but as I saw it at the meeting in both those places, there is at the moment a strong tendency and a very severe urgency on the part of the House to strongly urge that the curriculum and the clinical training of osteopathy be enforced before there is a meeting of the minds.

That is the essence of the thing, and I know it is Number 1 on the agenda next to veterans' affairs at the meeting of the interim session at St. Louis this year.

President Washburn: Do we understand first that it is the opinion of the House of Delegates that emphasis should be placed upon improving the teaching in the osteopathic schools, and secondly, that it is left entirely to each state to do as they see fit in this connection?

Dr. McGuire: That's right.

President Washburn: And perhaps there is no urgency that a state do anything unless they so desire?

Dr. McGuire: At the moment.

President Washburn: You have heard the report. What is your pleasure? Do you wish to take any action at all at this time? The Chair hears no motion. The report, without recommendations, will be accepted.

Report of Representatives to D.A.M.

We have had that. (See under Report of the Councilors.)

President Washburn: Next is the Committee on Nominations. The Chair recognizes Chairman Lawrence.

Report of the Committee on Nominations for 1954

Vice-President: Glenn M. Van Valkenburgh, Georgetown.

Secretary: Norman L. Cannon, Wilmington.

Treasurer: Charles Levy, Wilmington.

Delegate to A. M. A.: H. Thomas McGuire, New Castle.

Alternate to A. M. A.: Bruce Barnes, Seaford.

Rep. to D. A. M.: W. O. LaMotte, Sr., Wilmington.

STANDING COMMITTEES

Scientific Work

Lemuel C. McGee, Wilmington; Richard W. Comegys, Clayton; Norman L. Cannon, Wilmington.

Medical Education: Alfred R. Shands, Wilmington; Oliver A. James, Milford; Henry V. P. Wilson, Dover.

Publication: W. Edwin Bird, Wilmington; M. A. Tarumianz, Farnhurst; Norman L. Cannon, Wilmington.

Public Laws: Joseph S. McDaniel, Sr., Dover; J. Leland Fox, Seaford; Emil R. Mayerberg, Wilmington; Roger W. Murray, Wilmington; James Beebe, Jr., Lewes.

Budget: Charles Levy, Wilmington; J. M. Messick, Wilmington; M. A. Tarumianz, Farnhurst; Eugene H. Mercer, Dover; C. M. Moyer, Laurel.

State Board Medical Examiners: W. Edwin Bird, Wilmington; Andrew M. Gehret, Wilmington; Edmund G. Laird, Wilmington; Millard F. Squires, Wilmington; Charles E. Wagner, Wilmington; I. J. MacCollum, Wyoming; Joseph S. McDaniel, Sr., Dover; John B. Baker, Milford; Leslie M. Dobson, Milford; John W. Lynch, Seaford.

Terms Expiring March 1, 1954: W. Edwin Bird, Wilmington; Joseph S. McDaniel, Sr., Dover.

Respectfully submitted,
C. T. Lawrence, Chairman

President Washburn: You have heard the report of the committee. Are there any nominations from the floor in addition to the list of names submitted by the Nominating Committee? You have heard the report of the committee. What is your pleasure?

(Motion made and seconded that the report be accepted.)

President Washburn: Is it not in order that the report of the committee be accepted and the persons named be nominated for the respective offices, and the secretary be instructed to cast the ballot? Is that not the usual way? Does someone make such a motion?

(Motion made and seconded.)

President Washburn: The motion is to elect all the names nominated for the respective offices by the committee, and to instruct the secretary to cast the ballot.

(Motion put to a vote and carried.)

President Washburn: So ordered. The secretary will now function.

Acting Secretary Levy: The ballot has been cast.

President Washburn: The Chairman declares that the nominations so made are elected.

President Washburn: Are there any communications?

Portrait of Dr. Perkins

Reading of Communication from Portrait Commission of Delaware

Dear Dr Washburn:

Recently we were the recipient of a portrait of Judge Isaac Davis of the Delaware Supreme Court. The gift came from Miss Bessie B. Neavitt of Centreville, Maryland. Miss Neavitt also has a portrait of Dr John Day Perkins, who was President of the Medical Society of Delaware from 1849-1851. As Miss Neavitt is becoming advanced in years, she is arranging her affairs and would like to present the portrait of Dr. Perkins to your Society. A biographical account of Dr. Perkins appears on page 44 or Dr. M. I. Samuel's volume, The Medical Society of Delaware.

May I suggest that you communicate with Miss Neavitt telling her whether or not you will receive the portrait for your Society. I would appreciate having a copy of your letter to complete my file on this subject.

Thanking you and with kind personal regards, I am,

Cordially yours,
Leon de Valinger, Jr., *Secretary*

President Washburn: It isn't necessary to read it all, but here is the biographical sketch which indicates, among other things, that Dr. Perkins practiced at Smyrna, Delaware, for 21 years. You have heard of the offer that comes through the Portrait Commission. What is your pleasure?

(Motion made that the portrait be accepted with thanks.)

President Washburn: Would you add that the gift be accepted and that the officers be authorized to properly hang the portrait in the Delaware Academy of Medicine?

(Motion modified accordingly.)

President Washburn: You have heard the motion. What is your pleasure?

(The motion was put to a vote and carried.)

President Washburn: The Chair will entertain a motion to adjourn.

(At 10:55 P. M. the meeting of the House of Delegates was adjourned.)

There is a "sensitive" period in the effective treatment of tuberculosis which applies not only to the tubercle bacillus, when it is most vulnerable to attack, but also to the patient when he is most receptive of advice. That period is when the disease is first discovered. Eli H. Rubin, M.D., N.Y.S. J. of Med., June 15, 1953.

OBITUARY

Walter W. Ellis, M. D.

Dr. Walter W. Ellis, the only physician in Delaware City, died suddenly at his home on November 27, 1953, aged 75.

Although he suffered a serious illness about a year ago and had been in ill health recently, Dr. Ellis had maintained an active medical practice right up until the time of his death.

Born near Delmar, Del., he was educated in the public schools there, and was graduated from Jefferson Medical College, Philadelphia, in 1905. That same year he took up practice in the canal town.

He was a past president of and active in the Church Club of Delaware, an Episcopalian organization of clergymen and laymen. A retired colonel in the U. S. Army Medical Corps, he was a member of the staff of Delaware Hospital, and was past president of the New Castle County Medical Society. He also was affiliated with the Medical Society of Delaware and the American Medical Association.

In addition to his professional activities, Dr. Ellis was vice-president of Delaware City National Bank, and senior warden of Christ Episcopal Church. He also was a 32nd degree Mason and a member of the Lions Club.

Surviving are his widow, Mrs. Mary Elizabeth Ellis; a daughter, Mrs. Willard H. Johnson, Summit N. J.; a son, Walter W. Ellis, Jr., Elmer, N. J.; five grandchildren; a sister, Mrs. James E. Brayshaw, Wilmington, and a nephew, James R. Brayshaw, a senior student at Johns Hopkins Medical School, Baltimore.

Funeral services were held in Christ Episcopal Church, Delaware City, December 1st, with the Rev. H. Wiley Ralph, vicar, officiating.

Paul R. Smith, M. D.

Dr. Paul Ruskin Smith, 67, former surgeon for the Wilmington Bureau of Police, died shortly before midnight on December 5, 1953, in the Delaware Hospital where he had been a patient since Nov. 19. Death was attributed to a cerebral hemorrhage.

He was one of the city's outstanding obstetricians and chief of the obstetrical department at Delaware Hospital.

Born in 1886, at Greensboro, Md., he was the son of the Rev. Alfred and Janie Smith. He moved with his family to Delaware in his youth and was educated in Dover public schools.

Dr. Smith received a degree from the Wilmington Conference Academy in Dover in 1903. This institution later became Wesley Collegiate Institute and is now Wesley Junior College.

He received his degree of doctor of medicine from Jefferson Medical College, Philadelphia, in 1907 and immediately on finishing school he opened an office in Middletown where he maintained practice for two years. In 1909, Dr. Smith came to Wilmington and began general practice here.

Dr. Smith was chairman of the interne committee of the Delaware Hospital. His professional affiliations included the New Castle County Medical Society of which he was a past president, Medical Society of Delaware, American Medical Association, and the Philadelphia Medical Club.

He also was a member of the Wilmington Lions Club, Sigma Phi Epsilon Fraternity, University Club, Wilmington Whist Club, Wilmington Yacht Club and the Royal Swan Yacht Club of Chestertown, Md.

Dr. Smith enjoyed boating and fishing at his summer place near Still Pond, Md. He also was greatly interested in Camp Barnes, operated by the Delaware Association of Police. The latter organization honored him with the presentation of a gift bond four years ago in recognition of his service to its members and their families.

He is survived by his wife, the former Gertrude Hartman of Camden, a son, William H. Smith, Tarrytown, N. Y.; a sister, Mrs. James Owen Knotts, Denton, and two grandchildren.

Funeral services were held at the Smith Funeral Home on December 8th, with the Rev. Edward S. Bond officiating.

+ Editorials +

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Vol. 25 December, 1953 No. 12

The Transactions

This issue contains the Proceedings of the Medical Society and the Transactions of the House of Delegates. We fear that not many of our members read our Transactions, but they all should, for only by so doing can they be kept abreast of the current events of the Society, of the official positions taken by it on certain issues, and of its plans for future action or policy. So, read the Transactions.

Milestone No. 38

With this issue your humble scribe completes his thirty-eighth year as editor of *The Journal*. Since, June, 1951 he has been the senior editor in the state medical journal group. While there have been some heartaches and a few more headaches in these thirty-eight years, the task is one we have, on the whole, enjoyed, thanks to the cooperation of our members and our friends. May it continue—and thanks in advance.

No Santa Necessary

Santa's a big-hearted fellow, but there are some things not even he can bring. The greatest gift we enjoy today is something neither Santa nor anyone else could give us: our American heritage.

Nobody pulled the Declaration of Independence, or the Constitution, or the Bill of Rights out of a bag. Nobody handed us the right to worship as we choose, to speak our minds, to read and write the truth without censorship, to be entitled to a job without discrimination.

Freedom was *earned* by Americans—paid for with vigilance, sacrifice, and by many lives.

To keep this precious heritage we must keep on working for it, working together, Americans of every race and creed: voting in elections, taking part in community affairs, fighting racial and religious prejudice, protecting our neighbors' rights as our own, even fighting for them, if necessary!

Santa can't give us freedom, but we can give it to each other, not only this Christmas season, but all year, by keeping the spirit of good will and brotherhood alive. Working together for the rights, opportunities and liberties we cherish, we can all share and keep this greatest gift of all. So, let's all join together for many Merry Christmases!

The Journal extends to all our members,

friends, readers, and advertisers, the

Very Best Wishes for a

MERRY CHRISTMAS

and a

HAPPY NEW YEAR

Tips For Winter Driving

The current issue of *Cab Stand*, publication of Yellow Cab, contains the following pertinent information for its employees:

1. When it is slippery, double your caution. Stay out of trolley rails and ruts caused by packed snow.

2. When driving down a hill or grade put cab in first gear and apply brakes intermittently.

3. Do not take for granted that the same condition exists on an entire street. Areas shaded by tall buildings become icy more quickly than other parts of the same street.

4. On two-way streets stay out of the center lanes as much as possible so that you will have a better chance of avoiding an accident if the motorist coming from the opposite direction goes into a skid.

5. In braking your cab on a slippery street pump your brakes, not too hard or too fast, and keep your foot off the clutch pedal until you are practically stopped.

6. When approaching traffic lights do so with the thought that the light is going to change against you. This is important at all times, but especially so when the streets are slippery.

7. If the rear end of your cab starts to skid, turn your front wheels in the direction that the rear end is skidding in order to straighten out.

8. Use second or high gear when starting on slippery streets. This gives you better traction.

9. Keep a safe distance between you and the car ahead, this distance being determined by you after taking into consideration the condition of the street and the speed at which you are driving.

10. When driving through deep snow, slush, or flooded streets, the brake lining of your cab becomes wet, thereby losing braking effect. To remedy this, put the car in second gear and use your left foot to pump the brake pedal while the right foot is on the gas pedal keeping the cab moving. The friction thus created between the brake lining and the turning brake drum, will build up heat and evaporate the moisture.

A few tips for our own safe driving?

BOOK REVIEW

Sexual Behavior In The Human Female. By Alfred C. Kinsey, Wardell B. Pomeroy, Clyde E. Martin, Paul H. Gebhard, Research Associates; and others on the Staff of the Institute for Sex Research, Indiana University. Foreword by Robert M. Yerkes and George W. Corner. Pp. 842, with 151 charts, 179 tables, and 4 illustrations. Cloth. Price, $8.00. Philadelphia and London: W. B. Saunders Company, 1953.

This book does not lend itself to the short type of review usually found in the state medical journals. Only a rather lengthy and critical review, such as is found in the national special journals, could do it justice. Nor would excerpts or abstracts help much; the book is so meaty it must be read to be evaluated, just as the 1948 book on the male had to be read. Like the male book, this one has produced considerable controversy, as was to be expected in such a subject. None-the-less, the fact remains that this book, like its mate, is a definite milestone on the road towards a scientific approach to human sexual behavior, and as such is of interest to physicians, lawyers, legislators, sociologists, educators, and research students.

A short time ago we heard on a national radio program that this Kinsey book was a "mild flop" because, of the 800,000(?) expected sales, only 200,000 had been sold! Such astronomical sales of a new book, except for Kinsey's male book, are unheard of in the realm of medical books. The radio commentator stressed the huge volume already sold and blamed the diminution of sales on the widespread use of excerpts, etc. This could be true, though we hope it is not.

A veritable gold mine of facts, some of which you will accept, some reject, this book is a must for the groups we indicated above.

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(The Council on Pharmacy and Chemistry of the American Medical Association has adopted the following statement which appears in New and Nonofficial Remedies, 1953, Philadelphia, J. B. Lippincott Company, pp. 171-173, 1953.)

METHANTHELINE BROMIDE.—*Banthīne Bromide (Searle)*

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Actions and Uses.—Methantheline bromide, a parasympatholytic agent, produces the peripheral action of anticholinergic drugs such as atropine and the ganglionic blocking action of drugs such as tetraethylammonium chloride. Tolerated amounts of methantheline bromide exert side effects typical of atropine-like drugs, but cause less tachycardia, and also cause less postural hypotension than does tetraethylammonium chloride. Toxic doses produce a curare-like action at the somatic neuromuscular junction.

Clinical studies indicate that the drug effectively inhibits motility of the gastro-intestinal and genito-urinary tracts and, to a variable degree, diminishes the volume of perspiration and salivary, gastric, and pancreatic secretions. It also decreases mucoprotein secretion. Like atropine, it produces mydriasis and cycloplegia when applied locally to the eye or administered systemically, but until more clinical evidence becomes available, its local use for this purpose is not recommended. The value of the drug for preventing abnormal cardiac reflexes through the vagus during thoracic surgery, or as an agent for routine preoperative medication in place of atropine, requires further investigation before final conclusions can be reached.

Methantheline bromide is indicated for clinical use whenever anticholinergic spasmolytic action is desired, provided it is not contraindicated because of its atropine-like characteristics or because of a patient's intolerance to the unavoidable side effects of such therapy. It is useful as an adjunct in the management of peptic ulcer, chronic hypertrophic gastritis, certain less specific forms of gastritis, pylorospasm, hyperemesis gravidarum, biliary dyskinesia, acute and chronic pancreatitis, hypermotility of the small intestine not associated with organic change, ileostomies, spastic colon (mucous colitis, irritable bowel), diverticulitis, ureteral and urinary bladder spasm, hyperhidrosis or control of normal sweating which aggravates certain dermatoses, and control of salivation.

Methantheline bromide produces some degree of cycloplegia and mydriasis in therapeutic doses and therefore should not be administered to patients with glaucoma. It sometimes decreases the ability to read fine print. Xerostomia (dryness of the mouth) is a common, sometimes transient, side effect. Urinary retention of varying degrees may occur in elderly male patients with prostatic hypertrophy, and some patients may have difficulty emptying the rectum. Patients with edematous duodenal ulceration may experience nausea and vomiting during initial administration of the drug. These patients should take only liquids during the institution of drug therapy. All patients should be advised of the possible occurrence of side effects. Overdosage sufficient to produce a curare-like action may be counteracted by prompt subcutaneous injection of 2 mg. of neostigmine methylsulfate.

Dosage.—Methantheline bromide is administered orally or parenterally by either the intramuscular or intravenous route. Parenteral administration is not advised for patients able to take the drug orally. The average initial dose for adults, oral or parenteral, is 50 mg. For patients with considerable intolerance, 25 mg. may be employed. In the management of peptic ulcer, a beginning schedule of 50 mg. three times daily before meals, and 100 to 150 mg. on retiring is suggested. However, the usual effective dose is 100 mg. four times daily, although some patients may require more or less than this amount. The dosage may be increased to tolerance, using dryness of the mouth as a guide, and adjusted to meet the individual response of patients. Maintenance dosage in peptic ulcer is usually considered to be about one-half the therapeutic level. In the management of other hypermotile or hypersecretory states, the dosage should be adjusted to the smallest amount which will relieve the symptoms. When spastic conditions are secondary to inflammatory or other organic lesions, therapy directed toward the cause should be employed whenever possible.

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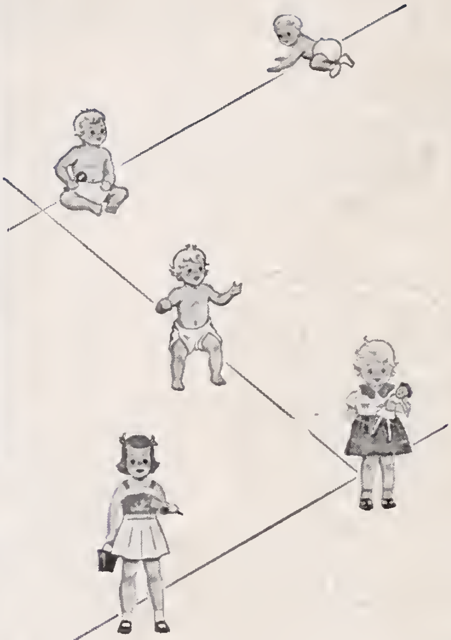

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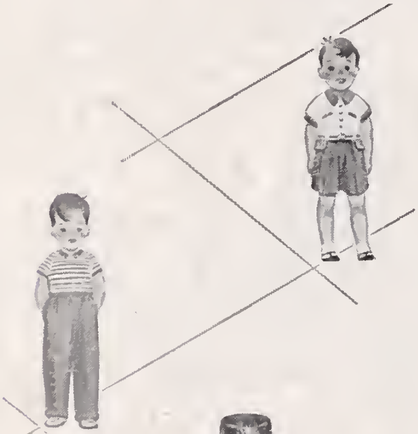

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